SEQUENCE LISTING

<110> ATKINSON, MARK A.
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<120> rAAV VECTOR-BASED COMPOSITIONS AND METHODS FOR THE PREVENTION AND TREATMENT OF MAMMALIAN DISEASES

<130> 4300.014500

<140> UNKNOWN
<141> 2004-10-19

<150> PCT/US0312324
<151> 2003-04-21

<150> 60/374,083
<151> 2002-04-19

<160> 54

<170> PatentIn version 3.1

<210> 1
<211> 178
<212> PRT
<213> Homo sapiens

<400> 1

Met His Ser Ser Ala Leu Leu Cys Cys Leu Val Leu Leu Thr Gly Val
1 5 10 15

Arg Ala Ser Pro Gly Gln Gly Thr Gln Ser Glu Asn Ser Cys Thr His
20 25 30

Phe Pro Gly Asn Leu Pro Asn Met Leu Arg Asp Leu Arg Asp Ala Phe
35 40 45

Ser Arg Val Lys Thr Phe Phe Gln Met Lys Asp Gln Leu Asp Asn Leu
50 55 60

Leu Leu Lys Glu Ser Leu Leu Glu Asp Phe Lys Gly Tyr Leu Gly Cys
65 70 75 80

Gln Ala Leu Ser Glu Met Ile Gln Phe Tyr Leu Glu Glu Val Met Pro
85 90 95

Gln Ala Glu Asn Gln Asp Pro Asp Ile Lys Ala His Val Asn Ser Leu
100 105 110

Gly Glu Asn Leu Lys Thr Leu Arg Leu Arg Leu Arg Arg Cys His Arg
115 120 125

```
Phe Leu Pro Cys Glu Asn Lys Ser Lys Ala Val Glu Gln Val Lys Asn
    130                 135                 140

Ala Phe Asn Lys Leu Gln Glu Lys Gly Ile Tyr Lys Ala Met Ser Glu
145                 150                 155                 160

Phe Asp Ile Phe Ile Asn Tyr Ile Glu Ala Tyr Met Thr Met Lys Ile
                165                 170                 175

Arg Asn
```

<210> 2
<211> 212
<212> PRT
<213> Homo sapiens

<400> 2

```
Met Asn Ser Phe Ser Thr Ser Ala Phe Gly Pro Val Ala Phe Ser Leu
1               5                   10                  15

Gly Leu Leu Leu Val Leu Pro Ala Ala Phe Pro Ala Pro Val Pro Pro
            20                  25                  30

Gly Glu Asp Ser Lys Asp Val Ala Ala Pro His Arg Gln Pro Leu Thr
        35                  40                  45

Ser Ser Glu Arg Ile Asp Lys Gln Ile Arg Tyr Ile Leu Asp Gly Ile
    50                  55                  60

Ser Ala Leu Arg Lys Glu Thr Cys Asn Lys Ser Asn Met Cys Glu Ser
65                  70                  75                  80

Ser Lys Glu Ala Leu Ala Glu Asn Asn Leu Asn Leu Pro Lys Met Ala
                85                  90                  95

Glu Lys Asp Gly Cys Phe Gln Ser Gly Phe Asn Glu Glu Thr Cys Leu
            100                 105                 110

Val Lys Ile Ile Thr Gly Leu Leu Glu Phe Glu Val Tyr Leu Glu Tyr
        115                 120                 125

Leu Gln Asn Arg Phe Glu Ser Ser Glu Glu Gln Ala Arg Ala Val Gln
    130                 135                 140

Met Ser Thr Lys Val Leu Ile Gln Phe Leu Gln Lys Lys Ala Lys Asn
145                 150                 155                 160
```

```
Leu Asp Ala Ile Thr Thr Pro Asp Pro Thr Thr Asn Ala Ser Leu Leu
                165                 170                 175

Thr Lys Leu Gln Ala Gln Asn Gln Trp Leu Gln Asp Met Thr Thr His
            180                 185                 190

Leu Ile Leu Arg Ser Phe Lys Glu Phe Leu Gln Ser Ser Leu Arg Ala
        195                 200                 205

Leu Arg Gln Met
    210
```

<210> 3
<211> 153
<212> PRT
<213> Homo sapiens

<400> 3

```
Met Gly Leu Thr Ser Gln Leu Leu Pro Pro Leu Phe Phe Leu Leu Ala
1               5                   10                  15

Cys Ala Gly Asn Phe Val His Gly His Lys Cys Asp Ile Thr Leu Gln
            20                  25                  30

Glu Ile Ile Lys Thr Leu Asn Ser Leu Thr Glu Gln Lys Thr Leu Cys
        35                  40                  45

Thr Glu Leu Thr Val Thr Asp Ile Phe Ala Ala Ser Lys Asn Thr Thr
    50                  55                  60

Glu Lys Glu Thr Phe Cys Arg Ala Ala Thr Val Leu Arg Gln Phe Tyr
65                  70                  75                  80

Ser His His Glu Lys Asp Thr Arg Cys Leu Gly Ala Thr Ala Gln Gln
                85                  90                  95

Phe His Arg His Lys Gln Leu Ile Arg Phe Leu Lys Arg Leu Asp Arg
            100                 105                 110

Asn Leu Trp Gly Leu Ala Gly Leu Asn Ser Cys Pro Val Lys Glu Ala
        115                 120                 125

Asn Gln Ser Thr Leu Glu Asn Phe Leu Glu Arg Leu Lys Thr Ile Met
    130                 135                 140

Arg Glu Lys Tyr Ser Lys Cys Ser Ser
145                 150
```

Sequence listing

<210> 4
<211> 117
<212> PRT
<213> Homo sapiens

<400> 4

```
Met Arg Ala Ser Ser Phe Leu Ile Val Val Val Phe Leu Ile Ala Gly
1               5                   10                  15

Thr Leu Val Leu Glu Ala Ala Val Thr Gly Val Pro Val Lys Gly Gln
            20                  25                  30

Asp Thr Val Lys Gly Arg Val Pro Phe Asn Gly Gln Asp Pro Val Lys
        35                  40                  45

Gly Gln Val Ser Val Lys Gly Gln Asp Lys Val Lys Ala Gln Glu Pro
    50                  55                  60

Val Lys Gly Pro Val Ser Thr Lys Pro Gly Ser Cys Pro Ile Ile Leu
65                  70                  75                  80

Ile Arg Cys Ala Met Leu Asn Pro Pro Asn Arg Cys Leu Lys Asp Thr
                85                  90                  95

Asp Cys Pro Gly Ile Lys Lys Cys Cys Glu Gly Ser Cys Gly Met Ala
            100                 105                 110

Cys Phe Val Pro Gln
        115
```

<210> 5
<211> 107
<212> PRT
<213> Homo sapiens

<400> 5

```
Met Thr Gln Pro Gly Val Leu Arg Ser Ala Ala Ala Arg Lys Pro Gly
1               5                   10                  15

Tyr Cys Pro Glu Phe Asp Leu Asp Cys Pro Phe Thr Leu Leu Pro Met
            20                  25                  30

Arg Trp Arg Asp Lys Ser Cys Arg Gly Ser Arg Ser Val Ala Thr Thr
        35                  40                  45

Thr Val Gly Ile Ser Val Trp Ser Pro Gly Gly Leu Trp Ile Glu Val
    50                  55                  60
```

Arg Ser Tyr Pro Leu Cys Lys Ser Phe Glu Glu Arg Ser Tyr Pro Phe
65 70 75 80

Cys Glu Ser Phe Lys Asp Gln Gln Thr Ser Glu His Pro Ala Cys Arg
85 90 95

Glu Glu Pro Pro Ser Pro Gly Pro Pro Leu Cys
100 105

<210> 6
<211> 89
<212> PRT
<213> Maccus mullatus

<400> 6

Val Val Val Phe Leu Ile Ala Gly Met Leu Val Val Glu Ala Ala Val
1 5 10 15

Thr Gly Val Pro Val Lys Gly Gln Asp Thr Val Lys Gly Arg Val Pro
20 25 30

Phe Asn Gly Gln Asp Pro Val Lys Gly Gln Val Ser Val Lys Gly Gln
35 40 45

Asp Arg Val Lys Gly Arg Gly Pro Val Lys Gly Pro Val Ser Thr Lys
50 55 60

Pro Gly Ser Cys Pro Asn Ile Leu Ile Arg Cys Ala Met Leu Asn Pro
65 70 75 80

Pro Asn Arg Cys Leu Lys Asp Thr Asp
85

<210> 7
<211> 143
<212> PRT
<213> Sus scrofa

<400> 7

Met Arg Ser Arg Ser Phe Leu Val Leu Val Val Val Phe Leu Ile Cys
1 5 10 15

Gly Thr Leu Val Val Gln Ala Ala Gly Arg Ile Arg Arg Pro Lys Gly
20 25 30

Lys Gly Thr Lys Lys Thr Leu Ala Leu Val Lys Gly Gln Gly Pro Val
35 40 45

Arg Gly Lys Asp Gln Val Lys Gly Gln Gly Pro Val Lys Gly Gln Asp

50 55 60

Leu Gly Lys Ser Gln Asp Pro Val Lys Ala Gln Leu Pro Asp Lys Gly
65 70 75 80

Gln Asp Pro Val Lys Ala Gln Pro Ala Ile Lys Arg Leu Ile Leu Leu
85 90 95

Thr Lys Pro Gly Ser Cys Pro Arg Ile Leu Ile Arg Cys Leu Met Val
100 105 110

Asn Pro Pro Asn Arg Cys Leu Ser Asp Ala Gln Cys Pro Gly Val Lys
115 120 125

Lys Cys Cys Glu Gly Phe Cys Gly Lys Asp Cys Met Asp Pro Lys
130 135 140

<210> 8
<211> 167
<212> PRT
<213> Sus scrofa

<400> 8

Met Arg Ser Arg Ser Phe Leu Val Leu Val Val Val Phe Leu Ile Cys
1 5 10 15

Gly Thr Leu Val Ala Gln Ala Ala Gly Arg Ile Arg Arg Pro Lys Gly
20 25 30

Lys Gly Thr Lys Lys Ile Leu Ala Leu Val Lys Gly Gln Gly Pro Val
35 40 45

Arg Gly Lys Asp Gln Val Lys Gly Gln Gly Pro Val Lys Gly Gln Asp
50 55 60

Leu Gly Lys Ser Gln Asp Pro Val Lys Ala Gln Leu Pro Asp Lys Gly
65 70 75 80

Gln Asp Leu Gly Lys Gly Glu Asp Ser Val Lys Gly Gln Asp Pro Phe
85 90 95

Lys Ala Gln Leu Pro Asp Lys Leu Gln Asp Pro Val Lys Ala Gln Pro
100 105 110

Ala Ile Lys Arg Leu Ile Leu Leu Thr Lys Pro Gly Ser Cys Pro Arg
115 120 125

Ile Leu Ile Arg Cys Leu Met Val Asn Pro Pro Asn Arg Cys Leu Ser

130 135 140

Asp Ala Gln Cys Pro Gly Leu Lys Lys Cys Cys Glu Gly Phe Cys Gly
145 150 155 160

Lys Ala Cys Met Asp Pro Lys
165

<210> 9
<211> 96
<212> PRT
<213> Bos taurus

<400> 9

Ser Pro Lys Gly Gln Gly Asn Val Val Phe Asn Gly Lys Gly Pro Val
1 5 10 15

Asn Gly Gln Ser Pro Asp Lys Gly Gln Asp Pro Val Lys Gly Gln Asp
20 25 30

Pro Val Lys Gly Gln Asp Val Val Val Ala Gln Asp Arg Ala Gly Leu
35 40 45

Pro Phe Lys Arg Gly Leu Cys Pro Arg Val Arg Ile His Cys Asn Leu
50 55 60

Trp Asn Pro Pro Asn Gln Cys Trp Arg Asp Ala His Cys Pro Gly Ala
65 70 75 80

Lys Lys Cys Cys Glu Gly Phe Cys Gly Lys Thr Cys Met Asn Pro Arg
85 90 95

<210> 10
<211> 131
<212> PRT
<213> Rattus norvegicus

<400> 10

Met Lys Ser Cys Gly Leu Phe Pro Leu Met Val Leu Leu Ala Leu Gly
1 5 10 15

Val Leu Ala Pro Trp Ser Val Glu Gly Gly Lys Asn Asp Ala Ile Lys
20 25 30

Ile Gly Ala Cys Pro Ala Arg Lys Pro Ala Gln Cys Leu Lys Leu Glu
35 40 45

Lys Pro Glu Cys Gly Thr Asp Trp Glu Cys Pro Gly Lys Gln Arg Cys
50 55 60

```
Cys Gln Asp Thr Cys Gly Phe Lys Cys Leu Asn Pro Val Pro Ile Arg
65                  70                  75                  80

Gly Pro Val Lys Lys Lys Pro Gly Arg Cys Val Lys Phe Gln Gly Lys
                85                  90                  95

Cys Leu Met Leu Asn Pro Pro Asn Lys Cys Gln Asn Asp Gly Gln Cys
            100                 105                 110

Asp Gly Lys Tyr Lys Cys Cys Glu Gly Met Cys Gly Lys Val Cys Leu
        115                 120                 125

Pro Pro Val
    130
```

<210> 11
<211> 131
<212> PRT
<213> Mus musculus

<400> 11

```
Met Lys Ser Cys Gly Leu Leu Pro Phe Thr Val Leu Leu Ala Leu Gly
1               5                   10                  15

Ile Leu Ala Pro Trp Thr Val Glu Gly Gly Lys Asn Asp Ala Ile Lys
            20                  25                  30

Ile Gly Ala Cys Pro Ala Lys Lys Pro Ala Gln Cys Leu Lys Leu Glu
        35                  40                  45

Lys Pro Gln Cys Arg Thr Asp Trp Glu Cys Pro Gly Lys Gln Arg Cys
    50                  55                  60

Cys Gln Asp Ala Cys Gly Ser Lys Cys Val Asn Pro Val Pro Ile Arg
65                  70                  75                  80

Lys Pro Val Trp Arg Lys Pro Gly Arg Cys Val Lys Thr Gln Ala Arg
                85                  90                  95

Cys Met Met Leu Asn Pro Pro Asn Val Cys Gln Arg Asp Gly Gln Cys
            100                 105                 110

Asp Gly Lys Tyr Lys Cys Cys Glu Gly Ile Cys Gly Lys Val Cys Leu
        115                 120                 125

Pro Pro Met
    130
```

<210> 12
<211> 397
<212> PRT
<213> Rattus norvegicus

<400> 12

```
Met Asn Trp His Leu Pro Leu Phe Leu Leu Ala Ser Val Thr Leu Pro
1               5                  10                  15

Ser Ile Cys Ser His Phe Asn Pro Leu Ser Leu Glu Glu Leu Gly Ser
            20                  25                  30

Asn Thr Gly Ile Gln Val Phe Asn Gln Ile Val Lys Ser Arg Pro His
        35                  40                  45

Asp Asn Ile Val Ile Ser Pro His Gly Ile Ala Ser Val Leu Gly Met
    50                  55                  60

Leu Gln Leu Gly Ala Asp Gly Arg Thr Lys Lys Gln Leu Ala Met Val
65                  70                  75                  80

Met Arg Tyr Gly Val Asn Gly Val Gly Lys Ile Leu Lys Lys Ile Asn
                85                  90                  95

Lys Ala Ile Val Ser Lys Lys Asn Lys Asp Ile Val Thr Val Ala Asn
            100                 105                 110

Ala Val Phe Val Lys Asn Ala Ser Glu Ile Glu Val Pro Phe Val Thr
        115                 120                 125

Arg Asn Lys Asp Val Phe Gln Cys Glu Val Arg Asn Val Asn Phe Glu
    130                 135                 140

Asp Pro Ala Ser Ala Cys Asp Ser Ile Asn Ala Trp Val Lys Asn Glu
145                 150                 155                 160

Thr Arg Asp Met Ile Asp Asn Leu Leu Ser Pro Asp Leu Ile Asp Gly
                165                 170                 175

Val Leu Thr Arg Leu Val Leu Val Asn Ala Val Tyr Phe Lys Gly Leu
            180                 185                 190

Trp Lys Ser Arg Phe Gln Pro Glu Asn Thr Lys Lys Arg Thr Phe Val
        195                 200                 205

Ala Ala Asp Gly Lys Ser Tyr Gln Val Pro Met Leu Ala Gln Leu Ser
    210                 215                 220
```

Val Phe Arg Cys Gly Ser Thr Ser Ala Pro Asn Asp Leu Trp Tyr Asn
225 230 235 240

Phe Ile Glu Leu Pro Tyr His Gly Glu Ser Ile Ser Met Leu Ile Ala
245 250 255

Leu Pro Thr Glu Ser Ser Thr Pro Leu Ser Ala Ile Ile Pro His Ile
260 265 270

Ser Thr Lys Thr Ile Asp Ser Trp Met Ser Ile Met Val Pro Lys Arg
275 280 285

Val Gln Val Ile Leu Pro Lys Phe Thr Ala Val Ala Gln Thr Asp Leu
290 295 300

Lys Glu Pro Leu Lys Val Leu Gly Ile Thr Asp Met Phe Asp Ser Ser
305 310 315 320

Lys Ala Asn Phe Ala Lys Ile Thr Arg Ser Glu Asn Leu His Val Ser
325 330 335

His Ile Leu Gln Lys Ala Lys Ile Glu Val Ser Glu Asp Gly Thr Lys
340 345 350

Ala Ser Ala Ala Thr Thr Ala Ile Leu Ile Ala Arg Ser Ser Pro Pro
355 360 365

Trp Phe Ile Val Asp Arg Pro Phe Leu Phe Phe Ile Arg His Asn Pro
370 375 380

Thr Gly Ala Val Leu Phe Met Gly Gln Ile Asn Lys Pro
385 390 395

<210> 13
<211> 374
<212> PRT
<213> Homo sapiens

<400> 13

Met Asn Thr Leu Ser Glu Gly Asn Gly Thr Phe Ala Ile His Leu Leu
1 5 10 15

Lys Met Leu Cys Gln Ser Asn Pro Ser Lys Asn Val Cys Tyr Ser Pro
20 25 30

Ala Ser Ile Ser Ser Ala Leu Ala Met Val Leu Leu Gly Ala Lys Gly
35 40 45

Gln Thr Ala Val Gln Ile Ser Gln Ala Leu Gly Leu Asn Lys Glu Glu
50 55 60

Gly Ile His Gln Gly Phe Gln Leu Leu Leu Arg Lys Leu Asn Lys Pro
65 70 75 80

Asp Arg Lys Tyr Ser Leu Arg Val Ala Asn Arg Leu Phe Ala Asp Lys
85 90 95

Thr Cys Glu Val Leu Gln Thr Phe Lys Glu Ser Ser Leu His Phe Tyr
100 105 110

Asp Ser Glu Met Glu Gln Leu Ser Phe Ala Glu Glu Ala Glu Val Ser
115 120 125

Arg Gln His Ile Asn Thr Trp Val Ser Lys Gln Thr Glu Gly Lys Ile
130 135 140

Pro Glu Leu Leu Ser Gly Gly Ser Val Asp Ser Glu Thr Arg Leu Val
145 150 155 160

Leu Ile Asn Ala Leu Tyr Phe Lys Gly Lys Trp His Gln Pro Phe Asn
165 170 175

Lys Glu Tyr Thr Met Asp Met Pro Phe Lys Ile Asn Lys Asp Glu Lys
180 185 190

Arg Pro Val Gln Met Met Cys Arg Glu Asp Thr Tyr Asn Leu Ala Tyr
195 200 205

Val Lys Glu Val Gln Ala Gln Val Leu Val Met Pro Tyr Glu Gly Met
210 215 220

Glu Leu Ser Leu Val Val Leu Leu Pro Asp Glu Gly Val Asp Leu Ser
225 230 235 240

Lys Val Glu Asn Asn Leu Thr Phe Glu Lys Leu Thr Ala Trp Met Glu
245 250 255

Ala Asp Phe Met Lys Ser Thr Asp Val Glu Val Phe Leu Pro Lys Phe
260 265 270

Lys Leu Gln Glu Asp Tyr Asp Met Glu Ser Leu Phe Gln Arg Leu Gly
275 280 285

Val Val Asp Val Phe Gln Glu Asp Lys Ala Asp Leu Ser Gly Met Ser

290 295 300

Pro Glu Arg Asn Leu Cys Val Ser Lys Phe Val His Gln Ser Val Val
305 310 315 320

Glu Ile Asn Glu Glu Gly Thr Glu Ala Ala Ala Ala Ser Ala Ile Ile
325 330 335

Glu Phe Cys Cys Ala Ser Ser Val Pro Thr Phe Cys Ala Asp His Pro
340 345 350

Phe Leu Phe Phe Ile Arg His Asn Lys Ala Asn Ser Ile Leu Phe Cys
355 360 365

Gly Arg Phe Ser Ser Pro
370

<210> 14
<211> 410
<212> PRT
<213> Cyprinus carpio

<400> 14

Met Ala Trp Ala Ala Pro His Glu Gly His Asp His Asp Gly His Pro
1 5 10 15

Ala Asp His Tyr His His Leu His His Gly Lys Asp Glu Ala His Pro
20 25 30

Ser His Ser Gly Glu Asp Ala Cys His Leu Leu Ser Pro His Asn Ala
35 40 45

Asp Phe Ala Phe Ser Leu Tyr Lys Lys Leu Ala Leu His Pro Asp Ala
50 55 60

Gln Gly Lys Asn Ile Phe Phe Ser Pro Val Gly Ile Ser Met Ala Leu
65 70 75 80

Ser Met Leu Ala Val Gly Ala Lys Gly Ser Thr Leu Ser Gln Ile Tyr
85 90 95

Ser Ser Leu Gly Tyr Ser Gly Leu Lys Ala Gln Gln Val Asn Glu Gly
100 105 110

Tyr Glu His Leu Ile His Met Leu Gly His Ser Gln Asp Thr Met Gln
115 120 125

Leu Glu Ala Gly Ala Gly Val Ala Ile Arg Glu Gly Phe Lys Val Val

130 135 140

Asp Gln Phe Leu Lys Asp Val Gln His Tyr Tyr Asn Ser Glu Ala Phe
145 150 155 160

Ser Val Asp Phe Ser Lys Pro Glu Ile Ala Ala Glu Glu Ile Asn Gln
165 170 175

Phe Ile Ala Lys Lys Thr Asn Asp Lys Ile Thr Asp Met Val Lys Asp
180 185 190

Leu Asp Ser Asp Met Val Met Met Leu Ile Asn Tyr Met Tyr Phe Arg
195 200 205

Gly Lys Trp Asp Lys Pro Phe Glu Ala Gln Leu Thr His Lys Ala Glu
210 215 220

Phe Lys Val Asp Lys Asp Thr Thr Val Gln Val Asp Met Met Lys Arg
225 230 235 240

Thr Gly Arg Tyr Asp Ile Tyr Gln Asp Pro Val Asn Gln Thr Thr Val
245 250 255

Met Met Val Pro Tyr Lys Gly Asn Thr Ser Met Met Ile Val Leu Pro
260 265 270

Asp Glu Gly Lys Met Lys Asp Val Glu Glu Ser Ile Cys Arg His His
275 280 285

Leu Lys Asn Trp His Asp Lys Leu Phe Arg Ser Ser Val Asp Leu Phe
290 295 300

Met Pro Lys Phe Ser Ile Ser Ala Thr Ser Lys Leu Asn Asp Ile Leu
305 310 315 320

Thr Glu Met Gly Val Thr Asp Ala Phe Ser Asp Thr Ala Asp Phe Ser
325 330 335

Gly Met Thr Glu Glu Leu Lys Val Lys Val Ser Gln Val Val His Lys
340 345 350

Ala Val Leu Ser Val Asp Glu Lys Gly Thr Glu Ala Ala Ala Ala Thr
355 360 365

Thr Ile Glu Ile Met Pro Met Ser Leu Pro Gly Thr Val Met Leu Asn
370 375 380

Arg Pro Phe Leu Val Leu Ile Val Glu Asp Thr Thr Lys Ser Ile Leu
385 390 395 400

Phe Met Gly Lys Ile Thr Asn Pro Thr Val
405 410

<210> 15
<211> 378
<212> PRT
<213> Sus scrofa

<220>
<221> MISC_FEATURE
<222> (337)..(337)
<223> X = ANY AMINO ACID

<400> 15

Met Glu Gln Leu Ser Ala Ala Asn Thr Arg Phe Ala Leu Asp Leu Phe
1 5 10 15

Arg Ala Leu Asn Glu Ser Asn Pro Ala Gly Asn Ile Phe Ile Ser Pro
20 25 30

Phe Ser Ile Ser Ser Ala Leu Ala Met Ile Leu Leu Gly Thr Arg Gly
35 40 45

Asn Thr Glu Ala Gln Met Ser Lys Ala Leu His Phe Asp Thr Val Lys
50 55 60

Asp Ile His Ser Arg Phe Gln Ser Leu Asn Ala Asp Ile Asn Lys Cys
65 70 75 80

Gly Ala Ser Tyr Ile Leu Lys Leu Ala Asn Arg Leu Phe Gly Glu Lys
85 90 95

Thr Tyr His Phe Leu Pro Glu Phe Leu Ala Ser Thr Gln Lys Thr Tyr
100 105 110

Gly Ala Glu Leu Ala Ser Val Asp Phe Leu Arg Ala Ser Glu Glu Ala
115 120 125

Arg Lys Ala Ile Asn Glu Trp Val Lys Glu Gln Thr Glu Gly Lys Ile
130 135 140

Pro Glu Leu Leu Ala Ser Gly Val Val Asp Ser Ala Thr Lys Leu Val
145 150 155 160

Leu Val Asn Ala Ile Tyr Phe Lys Gly Ser Trp Gln Glu Lys Phe Met
165 170 175

```
Thr Glu Ala Thr Lys Asp Ala Pro Phe Arg Leu Asn Lys Lys Asp Ser
            180                 185                 190

Lys Thr Val Lys Met Met Tyr Gln Lys Lys Lys Phe Pro Phe Gly Tyr
        195                 200                 205

Ile Lys Glu Leu Lys Cys Arg Val Leu Glu Leu Pro Tyr Gln Gly Lys
    210                 215                 220

Asp Leu Ser Met Val Ile Leu Leu Pro Asp Ser Ile Glu Asp Glu Ser
225                 230                 235                 240

Thr Gly Leu Arg Lys Ile Glu Gln His Leu Thr Leu Glu Lys Leu Arg
                245                 250                 255

Glu Trp Thr Lys Pro Asp Asn Leu Glu Leu Leu Glu Val Asn Val His
            260                 265                 270

Leu Pro Arg Phe Arg Leu Glu Glu Ser Tyr Asp Leu Asn Ala Pro Leu
        275                 280                 285

Ala Arg Leu Gly Val Gln Asp Leu Phe Gly Ser Arg Ala Asp Leu Thr
    290                 295                 300

Gly Met Ser Glu Ala Arg Asp Leu Phe Ile Ser Lys Val Val His Lys
305                 310                 315                 320

Ser Phe Val Glu Val Asn Glu Glu Gly Thr Glu Ala Ala Ala Ala Thr
                325                 330                 335

Xaa Gly Ile Ala Val Phe Ala Met Leu Met Pro Glu Glu Asp Phe Ile
            340                 345                 350

Ala Asp His Pro Phe Ile Phe Phe Ile Arg His Asn Pro Ser Ser Asn
        355                 360                 365

Ile Leu Phe Leu Gly Arg Leu Ser Ser Pro
    370                 375
```

<210> 16
<211> 54
<212> PRT
<213> Equus caballus

<400> 16

```
Glu Asp Leu Gln Gly Asp Ala Val Pro Glu Arg His Ala Thr Lys Asp
1               5                   10                  15
```

```
Asp Asn Glu His Pro Gln Glu Pro Ala Glu His Lys Lys Ala Pro Asn
            20                  25                  30

Glu Ala Ile Arg Thr Leu Leu His Thr Asn Val Glu Phe Asn Arg Pro
        35                  40                  45

Phe Val Leu Ile Ile Tyr
    50
```

<210> 17
<211> 49
<212> PRT
<213> Equus caballus

<400> 17

```
Glu Asp Leu Gln Gly Asp Ala Val Pro Glu Arg His Ala Thr Lys Asp
1               5                   10                  15

Asp Asn Glu His Pro Gln Glu Pro Ala Glu His Lys Lys Ala Pro Asn
            20                  25                  30

Glu Arg Pro Ala Thr Leu Leu Leu Asp Asn Val Glu Phe Asn Arg Pro
        35                  40                  45

Phe
```

<210> 18
<211> 54
<212> PRT
<213> Equus caballus

<400> 18

```
Glu Asp Leu Gln Gly Asp Ala Val Pro Glu Arg His Ala Thr Lys Asp
1               5                   10                  15

Asp Asn Glu His Pro Gln Glu Pro Ala Glu His Lys Lys Ala Pro Asn
            20                  25                  30

Glu Met Ile Pro Met Ser Leu Pro Pro Glu Leu Glu Phe Asn Arg Pro
        35                  40                  45

Phe Ile Leu Ile Ile Tyr
    50
```

<210> 19
<211> 390
<212> PRT

Sequence listing

<213> Homo sapiens

<400> 19

```
Met Asn Ser Leu Ser Glu Ala Asn Thr Lys Phe Met Phe Asp Leu Phe
1               5                  10                  15

Gln Gln Phe Arg Lys Ser Lys Glu Asn Asn Ile Phe Tyr Ser Pro Ile
            20                  25                  30

Ser Ile Thr Ser Ala Leu Gly Met Val Leu Leu Gly Ala Lys Asp Asn
        35                  40                  45

Thr Ala Gln Gln Ile Ser Lys Val Leu His Phe Asp Gln Val Thr Glu
    50                  55                  60

Asn Thr Thr Glu Lys Ala Ala Thr Tyr His Val Asp Arg Ser Gly Asn
65                  70                  75                  80

Val His His Gln Phe Gln Lys Leu Leu Thr Glu Phe Asn Lys Ser Thr
                85                  90                  95

Asp Ala Tyr Glu Leu Lys Ile Ala Asn Lys Leu Phe Gly Glu Lys Thr
            100                 105                 110

Tyr Gln Phe Leu Gln Glu Tyr Leu Asp Ala Ile Lys Lys Phe Tyr Gln
        115                 120                 125

Thr Ser Val Glu Ser Thr Asp Phe Ala Asn Ala Pro Glu Glu Ser Arg
    130                 135                 140

Lys Lys Ile Asn Ser Trp Val Glu Ser Gln Thr Asn Glu Lys Ile Lys
145                 150                 155                 160

Asn Leu Phe Pro Asp Gly Thr Ile Gly Asn Asp Thr Thr Leu Val Leu
                165                 170                 175

Val Asn Ala Ile Tyr Phe Lys Gly Gln Trp Glu Asn Lys Phe Lys Lys
            180                 185                 190

Glu Asn Thr Lys Glu Glu Lys Phe Trp Pro Asn Lys Asn Thr Tyr Lys
        195                 200                 205

Ser Val Gln Met Met Arg Gln Tyr Asn Ser Phe Asn Phe Ala Leu Leu
    210                 215                 220

Glu Asp Val Gln Ala Lys Val Leu Glu Ile Pro Tyr Lys Gly Lys Asp
225                 230                 235                 240
```

```
Leu Ser Met Ile Val Leu Leu Pro Asn Glu Ile Asp Gly Leu Gln Lys
                245                 250                 255

Leu Glu Glu Lys Leu Thr Ala Glu Lys Leu Met Glu Trp Thr Ser Leu
            260                 265                 270

Gln Asn Met Arg Glu Thr Cys Val Asp Leu His Leu Pro Arg Phe Lys
        275                 280                 285

Met Glu Glu Ser Tyr Asp Leu Lys Asp Thr Leu Arg Thr Met Gly Met
    290                 295                 300

Val Asn Ile Phe Asn Gly Asp Ala Asp Leu Ser Gly Met Thr Trp Ser
305                 310                 315                 320

His Gly Leu Ser Val Ser Lys Val Leu His Lys Ala Phe Val Glu Val
                325                 330                 335

Thr Glu Glu Gly Val Glu Ala Ala Ala Ala Thr Ala Val Val Val Val
            340                 345                 350

Glu Leu Ser Ser Pro Ser Thr Asn Glu Glu Phe Cys Cys Asn His Pro
        355                 360                 365

Phe Leu Phe Phe Ile Arg Gln Asn Lys Thr Asn Ser Ile Leu Phe Tyr
    370                 375                 380

Gly Arg Phe Ser Ser Pro
385                 390
```

<210> 20
<211> 418
<212> PRT
<213> Homo sapiens

<400> 20

```
Met Pro Ser Ser Val Ser Trp Gly Ile Leu Leu Leu Ala Gly Leu Cys
1               5                   10                  15

Cys Leu Val Pro Val Ser Leu Ala Glu Asp Pro Gln Gly Asp Ala Ala
            20                  25                  30

Gln Lys Thr Asp Thr Ser His His Asp Gln Asp His Pro Thr Phe Asn
        35                  40                  45

Lys Ile Thr Pro Asn Leu Ala Glu Phe Ala Phe Ser Leu Tyr Arg Gln
    50                  55                  60
```

```
Leu Ala His Gln Ser Asn Ser Thr Asn Ile Phe Phe Ser Pro Val Ser
65                  70                  75                  80

Ile Ala Thr Ala Phe Ala Met Leu Ser Leu Gly Thr Lys Ala Asp Thr
                85                  90                  95

His Asp Glu Ile Leu Glu Gly Leu Asn Phe Asn Leu Thr Glu Ile Pro
            100                 105                 110

Glu Ala Gln Ile His Glu Gly Phe Gln Glu Leu Leu Arg Thr Leu Asn
        115                 120                 125

Gln Pro Asp Ser Gln Leu Gln Leu Thr Thr Gly Asn Gly Leu Phe Leu
    130                 135                 140

Ser Glu Gly Leu Lys Leu Val Asp Lys Phe Leu Glu Asp Val Lys Lys
145                 150                 155                 160

Leu Tyr His Ser Glu Ala Phe Thr Val Asn Phe Gly Asp Thr Glu Glu
                165                 170                 175

Ala Lys Lys Gln Ile Asn Asp Tyr Val Glu Lys Gly Thr Gln Gly Lys
            180                 185                 190

Ile Val Asp Leu Val Lys Glu Leu Asp Arg Asp Thr Val Phe Ala Leu
        195                 200                 205

Val Asn Tyr Ile Phe Phe Lys Gly Lys Trp Glu Arg Pro Phe Glu Val
    210                 215                 220

Lys Asp Thr Glu Glu Glu Asp Phe His Val Asp Gln Val Thr Thr Val
225                 230                 235                 240

Lys Val Pro Met Met Lys Arg Leu Gly Met Phe Asn Ile Gln His Cys
                245                 250                 255

Lys Lys Leu Ser Ser Trp Val Leu Leu Met Lys Tyr Leu Gly Asn Ala
            260                 265                 270

Thr Ala Ile Phe Phe Leu Pro Asp Glu Gly Lys Leu Gln His Leu Glu
        275                 280                 285

Asn Glu Leu Thr His Asp Ile Ile Thr Lys Phe Leu Glu Asn Glu Asp
    290                 295                 300

Arg Arg Ser Ala Ser Leu His Leu Pro Lys Leu Ser Ile Thr Gly Thr
305                 310                 315                 320
```

Tyr Asp Leu Lys Ser Val Leu Gly Gln Leu Gly Ile Thr Lys Val Phe
325 330 335

Ser Asn Gly Ala Asp Leu Ser Gly Val Thr Glu Glu Ala Pro Leu Lys
340 345 350

Leu Ser Lys Ala Val His Lys Ala Val Leu Thr Ile Asp Glu Lys Gly
355 360 365

Thr Glu Ala Ala Gly Ala Met Phe Leu Glu Ala Ile Pro Met Ser Ile
370 375 380

Pro Pro Glu Val Lys Phe Asn Lys Pro Phe Val Phe Leu Met Ile Glu
385 390 395 400

Gln Asn Thr Lys Ser Pro Leu Phe Met Gly Lys Val Val Asn Pro Thr
405 410 415

Gln Lys

<210> 21
<211> 464
<212> PRT
<213> Homo sapiens

<400> 21

Met Tyr Ser Asn Val Ile Gly Thr Val Thr Ser Gly Lys Arg Lys Val
1 5 10 15

Tyr Leu Leu Ser Leu Leu Leu Ile Gly Phe Trp Asp Cys Val Thr Cys
20 25 30

His Gly Ser Pro Val Asp Ile Cys Thr Ala Lys Pro Arg Asp Ile Pro
35 40 45

Met Asn Pro Met Cys Ile Tyr Arg Ser Pro Glu Lys Lys Ala Thr Glu
50 55 60

Asp Glu Gly Ser Glu Gln Lys Ile Pro Glu Ala Thr Asn Arg Arg Val
65 70 75 80

Trp Glu Leu Ser Lys Ala Asn Ser Arg Phe Ala Thr Thr Phe Tyr Gln
85 90 95

His Leu Ala Asp Ser Lys Asn Asp Asn Asp Asn Ile Phe Leu Ser Pro
100 105 110

Leu Ser Ile Ser Thr Ala Phe Ala Met Thr Lys Leu Gly Ala Cys Asn
115 120 125

Asp Thr Leu Gln Gln Leu Met Glu Val Phe Lys Phe Asp Thr Ile Ser
130 135 140

Glu Lys Thr Ser Asp Gln Ile His Phe Phe Phe Ala Lys Leu Asn Cys
145 150 155 160

Arg Leu Tyr Arg Lys Ala Asn Lys Ser Ser Lys Leu Val Ser Ala Asn
165 170 175

Arg Leu Phe Gly Asp Lys Ser Leu Thr Phe Asn Glu Thr Tyr Gln Asp
180 185 190

Ile Ser Glu Leu Val Tyr Gly Ala Lys Leu Gln Pro Leu Asp Phe Lys
195 200 205

Glu Asn Ala Glu Gln Ser Arg Ala Ala Ile Asn Lys Trp Val Ser Asn
210 215 220

Lys Thr Glu Gly Arg Ile Thr Asp Val Ile Pro Ser Glu Ala Ile Asn
225 230 235 240

Glu Leu Thr Val Leu Val Leu Val Asn Thr Ile Tyr Phe Lys Gly Leu
245 250 255

Trp Lys Ser Lys Phe Ser Pro Glu Asn Thr Arg Lys Glu Leu Phe Tyr
260 265 270

Lys Ala Asp Gly Glu Ser Cys Ser Ala Ser Met Met Tyr Gln Glu Gly
275 280 285

Lys Phe Arg Tyr Arg Arg Val Ala Glu Gly Thr Gln Val Leu Glu Leu
290 295 300

Pro Phe Lys Gly Asp Asp Ile Thr Met Val Leu Ile Leu Pro Lys Pro
305 310 315 320

Glu Lys Ser Leu Ala Lys Val Glu Lys Glu Leu Thr Pro Glu Val Leu
325 330 335

Gln Glu Trp Leu Asp Glu Leu Glu Glu Met Met Leu Val Val His Met
340 345 350

Pro Arg Phe Arg Ile Glu Asp Gly Phe Ser Leu Lys Glu Gln Leu Gln

355 360 365

Asp Met Gly Leu Val Asp Leu Phe Ser Pro Glu Lys Ser Lys Leu Pro
370 375 380

Gly Ile Val Ala Glu Gly Arg Asp Asp Leu Tyr Val Ser Asp Ala Phe
385 390 395 400

His Lys Ala Phe Leu Glu Val Asn Glu Glu Gly Ser Glu Ala Ala Ala
405 410 415

Ser Thr Ala Val Val Ile Ala Gly Arg Ser Leu Asn Pro Asn Arg Val
420 425 430

Thr Phe Lys Ala Asn Arg Pro Phe Leu Val Phe Ile Arg Glu Val Pro
435 440 445

Leu Asn Thr Ile Ile Phe Met Gly Arg Val Ala Asn Pro Cys Val Lys
450 455 460

<210> 22
<211> 410
<212> PRT
<213> Gallus gallus

<400> 22

Met Tyr Phe Leu Gly Leu Leu Ser Leu Leu Val Leu Pro Ser Lys Ala
1 5 10 15

Phe Lys Thr Asn Phe Pro Asp Glu Thr Ile Ala Glu Leu Ser Val Asn
20 25 30

Val Tyr Asn Gln Leu Arg Ala Ala Arg Glu Asp Glu Asn Ile Leu Phe
35 40 45

Cys Pro Leu Ser Ile Ala Ile Ala Met Gly Met Ile Glu Leu Gly Ala
50 55 60

His Gly Thr Thr Leu Lys Glu Ile Arg His Ser Leu Gly Phe Asp Ser
65 70 75 80

Leu Lys Asn Gly Glu Glu Phe Thr Phe Leu Lys Asp Leu Ser Asp Met
85 90 95

Ala Thr Thr Glu Glu Ser His Tyr Val Leu Asn Met Ala Asn Ser Leu
100 105 110

Tyr Val Gln Asn Gly Phe His Val Ser Glu Lys Phe Leu Gln Leu Val

115 120 125

Lys Lys Tyr Phe Lys Ala Glu Val Glu Asn Ile Asp Phe Ser Gln Ser
130 135 140

Ala Ala Val Ala Thr His Ile Asn Lys Trp Val Glu Asn His Thr Asn
145 150 155 160

Asn Met Ile Lys Asp Phe Val Ser Ser Arg Asp Phe Ser Ala Leu Thr
165 170 175

His Leu Val Leu Ile Asn Ala Ile Tyr Phe Lys Gly Asn Trp Lys Ser
180 185 190

Gln Phe Arg Pro Glu Asn Thr Arg Thr Phe Ser Phe Thr Lys Asp Asp
195 200 205

Glu Thr Glu Val Gln Ile Pro Met Met Tyr Gln Gln Gly Glu Phe Tyr
210 215 220

Tyr Gly Glu Phe Ser Asp Gly Ser Asn Glu Ala Gly Gly Ile Tyr Gln
225 230 235 240

Val Leu Glu Ile Pro Tyr Glu Gly Asp Glu Ile Ser Met Met Ile Val
245 250 255

Leu Ser Arg Gln Glu Val Pro Leu Val Thr Leu Glu Pro Leu Val Lys
260 265 270

Ala Ser Leu Ile Asn Glu Trp Ala Asn Ser Val Lys Lys Gln Lys Val
275 280 285

Glu Val Tyr Leu Pro Arg Phe Thr Val Glu Gln Glu Ile Asp Leu Lys
290 295 300

Asp Val Leu Lys Gly Leu Gly Ile Thr Glu Val Phe Ser Arg Ser Ala
305 310 315 320

Asp Leu Thr Ala Met Ser Asp Asn Lys Glu Leu Tyr Leu Ala Lys Ala
325 330 335

Phe His Lys Ala Phe Leu Glu Val Asn Glu Glu Gly Ser Glu Ala Ala
340 345 350

Ala Ala Ser Gly Met Ile Ala Ile Ser Arg Met Ala Val Leu Tyr Pro
355 360 365

Gln Val Ile Val Asp His Pro Phe Phe Phe Leu Val Arg Asn Arg Arg
370 375 380

Thr Gly Thr Val Leu Phe Met Gly Arg Val Met His Pro Glu Ala Met
385 390 395 400

Asn Thr Ser Gly His Asp Phe Glu Glu Leu
405 410

<210> 23
<211> 648
<212> PRT
<213> Mus musculus

<400> 23

Met Ser Leu Lys Trp Ser Ala Cys Trp Val Ala Leu Gly Gln Leu Leu
1 5 10 15

Cys Ser Cys Ala Leu Ala Leu Lys Gly Gly Met Leu Phe Pro Lys Glu
20 25 30

Ser Pro Ser Arg Glu Leu Lys Ala Leu Asp Gly Leu Trp His Phe Arg
35 40 45

Ala Asp Leu Ser Asn Asn Arg Leu Gln Gly Phe Glu Gln Gln Trp Tyr
50 55 60

Arg Gln Pro Leu Arg Glu Ser Gly Pro Val Leu Asp Met Pro Val Pro
65 70 75 80

Ser Ser Phe Asn Asp Ile Thr Gln Glu Ala Ala Leu Arg Asp Phe Ile
85 90 95

Gly Trp Val Trp Tyr Glu Arg Glu Ala Ile Leu Pro Arg Arg Trp Thr
100 105 110

Gln Asp Thr Asp Met Arg Val Val Leu Arg Ile Asn Ser Ala His Tyr
115 120 125

Tyr Ala Val Val Trp Val Asn Gly Ile His Val Val Glu His Glu Gly
130 135 140

Gly His Leu Pro Phe Glu Ala Asp Ile Ser Lys Leu Val Gln Ser Gly
145 150 155 160

Pro Leu Thr Thr Cys Arg Ile Thr Ile Ala Ile Asn Asn Thr Leu Thr
165 170 175

```
Pro His Thr Leu Pro Pro Gly Thr Ile Val Tyr Lys Thr Asp Thr Ser
            180                 185                 190

Met Tyr Pro Lys Gly Tyr Phe Val Gln Asp Thr Ser Phe Asp Phe Phe
        195                 200                 205

Asn Tyr Ala Gly Leu His Arg Ser Val Val Leu Tyr Thr Thr Pro Thr
    210                 215                 220

Thr Tyr Ile Asp Asp Ile Thr Val Ile Thr Asn Val Glu Gln Asp Ile
225                 230                 235                 240

Gly Leu Val Thr Tyr Trp Ile Ser Val Gln Gly Ser Glu His Phe Gln
                245                 250                 255

Leu Glu Val Gln Leu Leu Asp Glu Asp Gly Lys Val Val Ala His Gly
            260                 265                 270

Thr Gly Asn Gln Gly Gln Leu Gln Val Pro Ser Ala Asn Leu Trp Trp
        275                 280                 285

Pro Tyr Leu Met His Glu His Pro Ala Tyr Met Tyr Ser Leu Glu Val
    290                 295                 300

Lys Val Thr Thr Thr Glu Ser Val Thr Asp Tyr Tyr Thr Leu Pro Val
305                 310                 315                 320

Gly Ile Arg Thr Val Ala Val Thr Lys Ser Lys Phe Leu Ile Asn Gly
                325                 330                 335

Lys Pro Phe Tyr Phe Gln Gly Val Asn Lys His Glu Asp Ser Asp Ile
            340                 345                 350

Arg Gly Lys Gly Phe Asp Trp Pro Leu Leu Val Lys Asp Phe Asn Leu
        355                 360                 365

Leu Arg Trp Leu Gly Ala Asn Ser Phe Arg Thr Ser His Tyr Pro Tyr
    370                 375                 380

Ser Glu Glu Val Leu Gln Leu Cys Asp Arg Tyr Gly Ile Val Val Ile
385                 390                 395                 400

Asp Glu Cys Pro Gly Val Gly Ile Val Leu Pro Gln Ser Phe Gly Asn
                405                 410                 415

Glu Ser Leu Arg His His Leu Glu Val Met Glu Glu Leu Val Arg Arg
            420                 425                 430
```

```
Asp Lys Asn His Pro Ala Val Val Met Trp Ser Val Ala Asn Glu Pro
        435                 440                 445

Ser Ser Ala Leu Lys Pro Ala Ala Tyr Tyr Phe Lys Thr Leu Ile Thr
    450                 455                 460

His Thr Lys Ala Leu Asp Leu Thr Arg Pro Val Thr Phe Val Ser Asn
465                 470                 475                 480

Ala Lys Tyr Asp Ala Asp Leu Gly Ala Pro Tyr Val Asp Val Ile Cys
                485                 490                 495

Val Asn Ser Tyr Phe Ser Trp Tyr His Asp Tyr Gly His Leu Glu Val
            500                 505                 510

Ile Gln Pro Gln Leu Asn Ser Gln Phe Glu Asn Trp Tyr Lys Thr His
        515                 520                 525

Gln Lys Pro Ile Ile Gln Ser Glu Tyr Gly Ala Asp Ala Ile Pro Gly
    530                 535                 540

Ile His Glu Asp Pro Pro Arg Met Phe Ser Glu Glu Tyr Gln Lys Ala
545                 550                 555                 560

Val Leu Glu Asn Tyr His Ser Val Leu Asp Gln Lys Arg Lys Glu Tyr
                565                 570                 575

Val Val Gly Glu Leu Ile Trp Asn Phe Ala Asp Phe Met Thr Asn Gln
            580                 585                 590

Ser Pro Leu Arg Val Ile Gly Asn Lys Lys Gly Ile Phe Thr Arg Gln
        595                 600                 605

Arg Gln Pro Lys Thr Ser Ala Phe Ile Leu Arg Glu Arg Tyr Trp Arg
    610                 615                 620

Ile Ala Asn Glu Thr Gly Gly His Gly Ser Gly Pro Arg Thr Gln Cys
625                 630                 635                 640

Phe Gly Ser Arg Pro Phe Thr Phe
                645
```

<210> 24
<211> 415
<212> PRT
<213> Homo sapiens

<400> 24

```
Met Glu Asp Leu Cys Val Ala Asn Thr Leu Phe Ala Leu Asn Leu Phe
1               5                  10                  15

Lys His Leu Ala Lys Ala Ser Pro Thr Gln Asn Leu Phe Leu Ser Pro
            20                  25                  30

Trp Ser Ile Ser Ser Thr Met Ala Met Val Tyr Met Gly Ser Arg Gly
        35                  40                  45

Ser Thr Glu Asp Gln Met Ala Lys Val Leu Gln Phe Asn Glu Val Gly
    50                  55                  60

Ala Asn Ala Val Thr Pro Met Thr Pro Glu Asn Phe Thr Ser Cys Gly
65                  70                  75                  80

Phe Met Gln Gln Ile Gln Lys Gly Ser Tyr Pro Asp Ala Ile Leu Gln
                85                  90                  95

Ala Gln Ala Ala Asp Lys Ile His Ser Ser Phe Arg Ser Leu Ser Ser
            100                 105                 110

Ala Ile Asn Ala Ser Thr Gly Asn Tyr Leu Leu Glu Ser Val Asn Lys
        115                 120                 125

Leu Phe Gly Glu Lys Ser Ala Ser Phe Arg Glu Glu Tyr Ile Arg Leu
    130                 135                 140

Cys Gln Lys Tyr Tyr Ser Ser Glu Pro Gln Ala Val Asp Phe Leu Glu
145                 150                 155                 160

Cys Ala Glu Glu Ala Arg Lys Lys Ile Asn Ser Trp Val Lys Thr Gln
                165                 170                 175

Thr Lys Gly Lys Ile Pro Asn Leu Leu Pro Glu Gly Ser Val Asp Gly
            180                 185                 190

Asp Thr Arg Met Val Leu Val Asn Ala Val Tyr Phe Lys Gly Lys Trp
        195                 200                 205

Lys Thr Pro Phe Glu Lys Lys Leu Asn Gly Leu Tyr Pro Phe Arg Val
    210                 215                 220

Asn Ser Ala Gln Arg Thr Pro Val Gln Met Met Tyr Leu Arg Glu Lys
225                 230                 235                 240

Leu Asn Ile Gly Tyr Ile Glu Asp Leu Lys Ala Gln Ile Leu Glu Leu
                245                 250                 255
```

```
Pro Tyr Ala Gly Asp Val Ser Met Phe Leu Leu Leu Pro Asp Glu Ile
            260                 265                 270

Ala Asp Val Ser Thr Gly Leu Glu Leu Leu Glu Ser Glu Ile Thr Tyr
        275                 280                 285

Asp Lys Leu Asn Lys Trp Thr Ser Lys Asp Lys Met Ala Glu Asp Glu
    290                 295                 300

Val Glu Val Tyr Ile Pro Gln Phe Lys Leu Glu Glu His Tyr Glu Leu
305                 310                 315                 320

Arg Ser Ile Leu Arg Ser Met Gly Met Glu Asp Ala Phe Asn Lys Gly
                325                 330                 335

Arg Ala Asn Phe Ser Gly Met Ser Glu Arg Asn Asp Leu Phe Leu Ser
            340                 345                 350

Glu Val Phe His Gln Ala Met Val Asp Val Asn Glu Glu Gly Thr Glu
        355                 360                 365

Ala Ala Ala Gly Thr Gly Gly Val Met Thr Gly Arg Thr Gly His Gly
    370                 375                 380

Gly Pro Gln Phe Val Ala Asp His Pro Phe Leu Phe Leu Ile Met His
385                 390                 395                 400

Lys Ile Thr Asn Cys Ile Leu Phe Phe Gly Arg Phe Ser Ser Pro
                405                 410                 415
```

<210> 25
<211> 413
<212> PRT
<213> Oryctolagus cuniculus

<400> 25

```
Met Pro Pro Ser Val Ser Arg Ala Leu Leu Leu Leu Ala Gly Leu Gly
1               5                   10                  15

Cys Leu Leu Pro Gly Phe Leu Ala Asp Glu Ala Gln Glu Thr Ala Val
            20                  25                  30

Ser Ser His Glu Gln Asp His Pro Ala Cys His Arg Ile Ala Pro Ser
        35                  40                  45

Leu Ala Glu Phe Ala Leu Ser Leu Tyr Arg Glu Val Ala His Glu Ser
    50                  55                  60
```

```
Asn Thr Thr Asn Ile Phe Phe Ser Pro Val Ser Ile Ala Leu Ala Phe
65                  70                  75                  80

Ala Met Leu Ser Leu Gly Ala Lys Gly Asp Thr His Thr Gln Val Leu
                85                  90                  95

Glu Gly Leu Lys Phe Asn Leu Thr Glu Thr Ala Glu Ala Gln Ile His
            100                 105                 110

Asp Gly Phe Arg His Leu Leu His Thr Val Asn Arg Pro Asp Ser Glu
        115                 120                 125

Leu Gln Leu Ala Ala Gly Asn Ala Leu Val Val His Glu Asn Leu Lys
    130                 135                 140

Leu Gln His Lys Phe Leu Glu Asp Ala Lys Asn Leu Tyr Gln Ser Glu
145                 150                 155                 160

Ala Phe Leu Val Asp Phe Arg Asp Pro Glu Gln Ala Lys Thr Lys Ile
                165                 170                 175

Asn Ser His Val Glu Lys Gly Thr Arg Gly Lys Ile Val Asp Leu Val
            180                 185                 190

Gln Glu Leu Asp Ala Arg Thr Leu Leu Ala Leu Val Asn Tyr Val Phe
        195                 200                 205

Phe Lys Gly Lys Trp Glu Lys Pro Phe Glu Pro Glu Asn Thr Lys Glu
    210                 215                 220

Glu Asp Phe His Val Asp Ala Thr Thr Thr Val Arg Val Pro Met Met
225                 230                 235                 240

Ser Arg Leu Gly Met Tyr Val Met Phe His Cys Ser Thr Leu Ala Ser
                245                 250                 255

Thr Val Leu Arg Met Asp Tyr Lys Gly Asn Ala Thr Ala Leu Phe Leu
            260                 265                 270

Leu Pro Asp Glu Gly Lys Leu Gln His Leu Glu Asp Thr Leu Thr Thr
        275                 280                 285

Glu Leu Ile Ala Lys Phe Leu Ala Lys Ser Ser Leu Arg Ser Val Thr
    290                 295                 300

Val Arg Phe Pro Lys Leu Ser Ile Ser Gly Thr Tyr Asp Leu Lys Pro
```

305 310 315 320

Leu Leu Gly Lys Leu Gly Ile Thr Gln Val Phe Ser Asn Asn Ala Asp
325 330 335

Leu Ser Gly Ile Thr Glu Gln Glu Pro Leu Lys Val Ser Gln Ala Leu
340 345 350

His Lys Ala Val Leu Thr Ile Asp Glu Arg Gly Thr Glu Ala Ala Gly
355 360 365

Ala Ser Phe Val Glu Leu Ile Pro Glu Ser Val Pro Asp Ser Ile Thr
370 375 380

Leu Asp Arg Pro Phe Leu Phe Val Ile Tyr Ser His Glu Ile Lys Ser
385 390 395 400

Pro Leu Phe Val Gly Lys Val Val Asp Pro Thr Gln His
405 410

<210> 26
<211> 397
<212> PRT
<213> Ratttus norvegicus

<400> 26

Met Asn Trp His Phe Pro Phe Phe Ile Leu Thr Thr Val Thr Leu Ser
1 5 10 15

Ser Val Tyr Ser Gln Leu Asn Ser Leu Ser Leu Glu Glu Leu Gly Ser
20 25 30

Asp Thr Gly Ile Gln Val Phe Asn Gln Ile Ile Lys Ser Gln Pro His
35 40 45

Glu Asn Val Val Ile Ser Pro His Gly Ile Ala Ser Ile Leu Gly Met
50 55 60

Leu Gln Leu Gly Ala Asp Gly Arg Thr Lys Lys Gln Leu Ser Thr Val
65 70 75 80

Met Arg Tyr Asn Val Asn Gly Val Gly Lys Val Leu Lys Lys Ile Asn
85 90 95

Lys Ala Ile Val Ser Lys Lys Asn Lys Asp Ile Val Thr Val Ala Asn
100 105 110

Ala Val Phe Val Arg Asn Gly Phe Lys Val Glu Val Pro Phe Ala Ala

115 120 125

Arg Asn Lys Glu Val Phe Gln Cys Glu Val Gln Ser Val Asn Phe Gln
130 135 140

Asp Pro Ala Ser Ala Cys Asp Ala Ile Asn Phe Trp Val Lys Asn Glu
145 150 155 160

Thr Arg Gly Met Ile Asp Asn Leu Leu Ser Pro Asn Leu Ile Asp Ser
165 170 175

Ala Leu Thr Lys Leu Val Leu Val Asn Ala Val Tyr Phe Lys Gly Leu
180 185 190

Trp Lys Ser Arg Phe Gln Pro Glu Asn Thr Lys Lys Arg Thr Phe Val
195 200 205

Ala Gly Asp Gly Lys Ser Tyr Gln Val Pro Met Leu Ala Gln Leu Ser
210 215 220

Val Phe Arg Ser Gly Ser Thr Lys Thr Pro Asn Gly Leu Trp Tyr Asn
225 230 235 240

Phe Ile Glu Leu Pro Tyr His Gly Glu Ser Ile Ser Met Leu Ile Ala
245 250 255

Leu Pro Thr Glu Ser Ser Thr Pro Leu Ser Ala Ile Ile Pro His Ile
260 265 270

Ser Thr Lys Thr Ile Asn Ser Trp Met Asn Thr Met Val Pro Lys Arg
275 280 285

Met Gln Leu Val Leu Pro Lys Phe Thr Ala Leu Ala Gln Thr Asp Leu
290 295 300

Lys Glu Pro Leu Lys Ala Leu Gly Ile Thr Glu Met Phe Glu Pro Ser
305 310 315 320

Lys Ala Asn Phe Ala Lys Ile Thr Arg Ser Glu Ser Leu His Val Ser
325 330 335

His Ile Leu Gln Lys Ala Lys Ile Glu Val Ser Glu Asp Gly Thr Lys
340 345 350

Ala Ala Val Val Thr Thr Ala Ile Leu Ile Ala Arg Ser Ser Pro Pro
355 360 365

Trp Phe Ile Val Asp Arg Pro Phe Leu Phe Cys Ile Arg His Asn Pro
370 375 380

Thr Gly Ala Ile Leu Phe Leu Gly Gln Val Asn Lys Pro
385 390 395

<210> 27
<211> 417
<212> PRT
<213> Sus scrofa

<400> 27

Met Ser His Gly Lys Met Pro Leu Val Leu Ser Leu Val Leu Ile Leu
1 5 10 15

Cys Gly Leu Phe Asn Ser Ile Ser Cys Glu Lys Gln Gln Thr Ser Pro
20 25 30

Lys Thr Ile Thr Pro Val Ser Phe Lys Arg Ile Ala Ala Leu Ser Gln
35 40 45

Lys Met Glu Ala Asn Tyr Lys Ala Phe Ala Gln Glu Leu Phe Lys Thr
50 55 60

Leu Leu Ile Glu Asp Pro Arg Lys Asn Met Ile Phe Ser Pro Val Ser
65 70 75 80

Ile Ser Ile Ser Leu Ala Thr Leu Ser Leu Gly Leu Arg Ser Ala Thr
85 90 95

Arg Thr Asn Ala Ile Asp Val Leu Asp Val Ala Leu Lys Asn Leu Ala
100 105 110

Val Met Leu Met Ala Gln Ala Pro Thr Ala Leu Leu Glu Ile Val His
115 120 125

Glu Leu Val Asn Arg Thr Ala Lys His Gln Asp Ile Leu Ile Asp Arg
130 135 140

Thr Glu Met Asn Gln Met Phe Leu Lys Glu Ile Asp Arg Tyr Ile Lys
145 150 155 160

Met Asp Ile Gln Met Ile Asp Phe Lys Asp Lys Glu Lys Thr Lys Lys
165 170 175

Ala Ile Asn Gln Phe Val Ala Asp Lys Ile Asp Lys Lys Ala Lys Asn
180 185 190

```
Leu Ile Thr His Leu Asp Pro Gln Thr Leu Leu Cys Leu Val Asn Tyr
        195                 200                 205

Ile Phe Phe Lys Gly Ile Leu Glu Arg Ala Phe Gln Thr Asn Leu Thr
    210                 215                 220

Lys Lys Glu Asp Phe Phe Val Asn Glu Lys Thr Ile Val Gln Val Asp
225                 230                 235                 240

Met Met Arg Lys Thr Glu Arg Met Ile Tyr Ser Arg Ser Glu Glu Leu
                245                 250                 255

Leu Ala Thr Met Val Lys Ile Pro Cys Lys Glu Asn Ala Ser Ile Ile
            260                 265                 270

Leu Val Leu Pro Asp Thr Gly Lys Phe Asn Phe Ala Leu Lys Glu Met
        275                 280                 285

Ala Ala Lys Arg Ala Arg Leu Gln Lys Thr Asn Asp Phe Arg Leu Val
    290                 295                 300

His Leu Val Val Pro Lys Ile Lys Asp Asn Leu Gln Asp Arg Phe Lys
305                 310                 315                 320

His Leu Leu Pro Lys Ile Gly Ile Asn Asp Ile Phe Thr Thr Lys Ala
                325                 330                 335

Val Thr Trp Asn Thr Thr Gly Thr Ser Thr Ile Leu Glu Ala Val His
            340                 345                 350

His Ala Val Ile Glu Val Lys Glu Asp Gly Leu Thr Lys Asn Ala Ala
        355                 360                 365

Lys Asp Lys Asp Phe Trp Lys Val Pro Val Asp Lys Lys Glu Val Pro
    370                 375                 380

Val Val Val Lys Phe Asp Arg Pro Phe Phe Leu Phe Val Glu Asp Glu
385                 390                 395                 400

Ile Thr Arg Arg Asp Leu Phe Val Ala Lys Val Phe Asn Pro Lys Thr
                405                 410                 415

Glu
```

<210> 28
<211> 402
<212> PRT

Sequence listing

<213> Homo sapiens

<400> 28

```
Met Gln Met Ser Pro Ala Leu Thr Cys Leu Val Leu Gly Leu Ala Leu
1               5                  10                  15

Val Phe Gly Glu Gly Ser Ala Val His His Pro Pro Ser Tyr Val Ala
            20                  25                  30

His Leu Ala Ser Asp Phe Gly Val Arg Val Phe Gln Gln Val Ala Gln
        35                  40                  45

Ala Ser Lys Asp Arg Asn Val Val Phe Ser Pro Tyr Gly Val Ala Ser
    50                  55                  60

Val Leu Ala Met Leu Gln Leu Thr Thr Gly Gly Glu Thr Gln Gln Gln
65                  70                  75                  80

Ile Gln Ala Ala Met Gly Phe Lys Ile Asp Asp Lys Gly Met Ala Pro
                85                  90                  95

Ala Leu Arg His Leu Tyr Lys Glu Leu Met Gly Pro Trp Asn Lys Asp
            100                 105                 110

Glu Ile Ser Thr Thr Asp Ala Ile Phe Val Gln Arg Asp Leu Lys Leu
        115                 120                 125

Val Gln Gly Phe Met Pro His Phe Phe Arg Leu Phe Arg Ser Thr Val
    130                 135                 140

Lys Gln Val Asp Phe Ser Glu Val Glu Arg Ala Arg Phe Ile Ile Asn
145                 150                 155                 160

Asp Trp Val Lys Thr His Thr Lys Gly Met Ile Ser Asn Leu Leu Gly
                165                 170                 175

Lys Gly Ala Val Asp Gln Leu Thr Arg Leu Val Leu Val Asn Ala Leu
            180                 185                 190

Tyr Phe Asn Gly Gln Trp Lys Thr Pro Phe Pro Asp Ser Ser Thr His
        195                 200                 205

Arg Arg Leu Phe His Lys Ser Asp Gly Ser Thr Val Ser Val Pro Met
    210                 215                 220

Met Ala Gln Thr Asn Lys Phe Asn Tyr Thr Glu Phe Thr Thr Pro Asp
225                 230                 235                 240
```

```
Gly His Tyr Tyr Asp Ile Leu Glu Leu Pro Tyr His Gly Asp Thr Leu
               245                 250                 255

Ser Met Phe Ile Ala Ala Pro Tyr Glu Lys Glu Val Pro Leu Ser Ala
           260                 265                 270

Leu Thr Asn Ile Leu Ser Ala Gln Leu Ile Ser His Trp Lys Gly Asn
       275                 280                 285

Met Thr Arg Leu Pro Arg Leu Leu Val Leu Pro Lys Phe Ser Leu Glu
   290                 295                 300

Thr Glu Val Asp Leu Arg Lys Pro Leu Glu Asn Leu Gly Met Thr Asp
305                 310                 315                 320

Met Phe Arg Gln Phe Gln Ala Asp Phe Thr Ser Leu Ser Asp Gln Glu
               325                 330                 335

Pro Leu His Val Ala Gln Ala Leu Gln Lys Val Lys Ile Glu Val Asn
           340                 345                 350

Glu Ser Gly Thr Val Ala Ser Ser Ser Thr Ala Val Ile Val Ser Ala
       355                 360                 365

Arg Met Ala Pro Glu Glu Ile Ile Met Asp Arg Pro Phe Leu Phe Val
   370                 375                 380

Val Arg His Asn Pro Thr Gly Thr Val Leu Phe Met Gly Gln Val Met
385                 390                 395                 400

Glu Pro
```

<210> 29
<211> 379
<212> PRT
<213> Equus caballus

<400> 29

```
Met Glu Gln Leu Ser Thr Ala Asn Thr His Phe Ala Val Asp Leu Phe
1               5                   10                  15

Arg Ala Leu Asn Glu Ser Asp Pro Thr Gly Asn Ile Phe Ile Ser Pro
           20                  25                  30

Leu Ser Ile Ser Ser Ala Leu Ala Met Ile Phe Leu Gly Thr Arg Gly
       35                  40                  45
```

```
Asn Thr Ala Ala Gln Val Ser Lys Ala Leu Tyr Phe Asp Thr Val Glu
    50                  55                  60

Asp Ile His Ser Arg Phe Gln Ser Leu Asn Ala Asp Ile Asn Lys Pro
65                  70                  75                  80

Gly Ala Pro Tyr Ile Leu Lys Leu Ala Asn Arg Leu Tyr Gly Glu Lys
                85                  90                  95

Thr Tyr Asn Phe Leu Ala Asp Phe Leu Ala Ser Thr Gln Lys Met Tyr
            100                 105                 110

Gly Ala Glu Leu Ala Ser Val Asp Phe Gln Gln Ala Pro Glu Asp Ala
        115                 120                 125

Arg Lys Glu Ile Asn Glu Trp Val Lys Gly Gln Thr Glu Gly Lys Ile
    130                 135                 140

Pro Glu Leu Leu Val Lys Gly Met Val Asp Asn Met Thr Lys Leu Val
145                 150                 155                 160

Leu Val Asn Ala Ile Tyr Phe Lys Gly Asn Trp Gln Glu Lys Phe Met
                165                 170                 175

Lys Glu Ala Thr Arg Asp Ala Pro Phe Arg Leu Asn Lys Lys Asp Thr
            180                 185                 190

Lys Thr Val Lys Met Met Tyr Gln Lys Lys Lys Phe Pro Tyr Asn Tyr
        195                 200                 205

Ile Glu Asp Leu Lys Cys Arg Val Leu Glu Leu Pro Tyr Gln Gly Lys
    210                 215                 220

Glu Leu Ser Met Ile Ile Leu Leu Pro Asp Asp Ile Glu Asp Glu Ser
225                 230                 235                 240

Thr Gly Leu Glu Lys Ile Glu Lys Gln Leu Thr Leu Glu Lys Leu Arg
                245                 250                 255

Glu Trp Thr Lys Pro Glu Asn Leu Tyr Leu Ala Glu Val Asn Val His
            260                 265                 270

Leu Pro Arg Phe Lys Leu Glu Glu Ser Tyr Asp Leu Thr Ser His Leu
        275                 280                 285

Ala Arg Leu Gly Val Gln Asp Leu Phe Asn Arg Gly Lys Ala Asp Leu
    290                 295                 300
```

```
Ser Gly Met Ser Gly Ala Arg Asp Leu Phe Val Ser Lys Ile Ile His
305                 310                 315                 320

Lys Ser Phe Val Asp Leu Asn Glu Glu Gly Thr Glu Ala Ala Ala Ala
                325                 330                 335

Thr Ala Gly Thr Ile Met Leu Ala Met Leu Met Pro Glu Glu Asn Phe
            340                 345                 350

Asn Ala Asp His Pro Phe Ile Phe Phe Ile Arg His Asn Pro Ser Ala
        355                 360                 365

Asn Ile Leu Phe Leu Gly Arg Phe Ser Ser Pro
    370                 375
```

<210> 30
<211> 417
<212> PRT
<213> Homo sapiens

<400> 30

```
Met Arg Ser Leu Leu Leu Gly Thr Leu Cys Leu Leu Ala Val Ala Leu
1               5                   10                  15

Ala Ala Glu Val Lys Lys Pro Val Glu Ala Ala Ala Pro Gly Thr Ala
            20                  25                  30

Glu Lys Leu Ser Ser Lys Ala Thr Thr Leu Ala Glu Pro Ser Thr Gly
        35                  40                  45

Leu Ala Phe Ser Leu Tyr Gln Ala Met Ala Lys Asp Gln Ala Val Glu
    50                  55                  60

Asn Ile Leu Val Ser Pro Val Val Val Ala Ser Ser Leu Gly Leu Val
65                  70                  75                  80

Ser Leu Gly Gly Lys Ala Thr Thr Ala Ser Gln Ala Lys Ala Val Leu
                85                  90                  95

Ser Ala Glu Gln Leu Arg Asp Glu Glu Val His Ala Gly Leu Gly Glu
            100                 105                 110

Leu Leu Arg Ser Leu Ser Asn Ser Thr Ala Arg Asn Val Thr Trp Lys
        115                 120                 125

Leu Gly Ser Arg Leu Tyr Gly Pro Ser Ser Val Ser Phe Ala Asp Asp
    130                 135                 140
```

Phe Val Arg Ser Ser Lys Gln His Tyr Asn Cys Glu His Ser Lys Ile
145 150 155 160

Asn Phe Pro Asp Lys Arg Ser Ala Leu Gln Ser Ile Asn Glu Trp Ala
165 170 175

Ala Gln Thr Thr Asp Gly Lys Leu Pro Glu Val Thr Lys Asp Val Glu
180 185 190

Arg Thr Asp Gly Ala Leu Leu Val Asn Ala Met Phe Phe Lys Pro His
195 200 205

Trp Asp Glu Lys Phe His His Lys Met Val Asp Asn Arg Gly Phe Met
210 215 220

Val Thr Arg Ser Tyr Thr Val Gly Val Thr Met Met His Arg Thr Gly
225 230 235 240

Leu Tyr Asn Tyr Tyr Asp Asp Glu Lys Glu Lys Leu Gln Leu Val Glu
245 250 255

Met Pro Leu Ala His Lys Leu Ser Ser Leu Ile Ile Leu Met Pro His
260 265 270

His Val Glu Pro Leu Glu Arg Leu Glu Lys Leu Leu Thr Lys Glu Gln
275 280 285

Leu Lys Ile Trp Met Gly Lys Met Gln Lys Lys Ala Val Ala Ile Ser
290 295 300

Leu Pro Lys Gly Val Val Glu Val Thr His Asp Leu Gln Lys His Leu
305 310 315 320

Ala Gly Leu Gly Leu Thr Glu Ala Ile Asp Lys Asn Lys Ala Asp Leu
325 330 335

Ser Arg Met Ser Gly Lys Lys Asp Leu Tyr Leu Ala Ser Val Phe His
340 345 350

Ala Thr Ala Phe Glu Leu Asp Thr Asp Gly Asn Pro Phe Asp Gln Asp
355 360 365

Ile Tyr Gly Arg Glu Glu Leu Arg Ser Pro Lys Leu Phe Tyr Ala Asp
370 375 380

His Pro Phe Ile Phe Leu Val Arg Asp Thr Gln Ser Gly Ser Leu Leu

385 390 395 400

Phe Ile Gly Arg Leu Val Arg Leu Lys Gly Asp Lys Met Arg Asp Glu
405 410 415

Leu

<210> 31
<211> 418
<212> PRT
<213> Homo sapiens

<400> 31

Met Arg Ser Leu Leu Leu Leu Ser Ala Phe Cys Leu Leu Glu Ala Ala
1 5 10 15

Leu Ala Ala Glu Val Lys Lys Pro Ala Ala Ala Ala Ala Pro Gly Thr
20 25 30

Ala Glu Lys Leu Ser Pro Lys Ala Ala Thr Leu Ala Glu Arg Ser Ala
35 40 45

Gly Leu Ala Phe Ser Leu Tyr Gln Ala Met Ala Lys Asp Gln Ala Val
50 55 60

Glu Asn Ile Leu Val Ser Pro Val Val Val Ala Ser Ser Leu Gly Leu
65 70 75 80

Val Ser Leu Gly Gly Lys Ala Thr Thr Ala Ser Gln Ala Lys Ala Val
85 90 95

Leu Ser Ala Glu Gln Leu Arg Asp Glu Glu Val His Ala Gly Leu Gly
100 105 110

Glu Leu Leu Arg Ser Leu Ser Asn Ser Thr Ala Arg Asn Val Thr Trp
115 120 125

Lys Leu Gly Ser Arg Leu Tyr Gly Pro Ser Ser Val Ser Phe Ala Asp
130 135 140

Asp Phe Val Arg Ser Ser Lys Gln His Tyr Asn Cys Glu His Ser Lys
145 150 155 160

Ile Asn Phe Arg Asp Lys Arg Arg Pro Leu Gln Ser Ile Asn Glu Trp
165 170 175

Ala Ala Gln Thr Thr Asp Gly Lys Leu Pro Glu Val Thr Lys Asp Val

180 185 190

Glu Arg Thr Asp Gly Ala Leu Leu Val Asn Ala Met Phe Phe Lys Pro
195 200 205

His Trp Asp Glu Lys Phe His His Lys Met Val Asp Asn Arg Gly Phe
210 215 220

Met Val Thr Arg Ser Tyr Thr Val Gly Val Met Met Met His Arg Thr
225 230 235 240

Gly Leu Tyr Asn Tyr Tyr Asp Asp Glu Lys Glu Lys Leu Gln Ile Val
245 250 255

Glu Met Pro Leu Ala His Lys Leu Ser Ser Leu Ile Ile Leu Met Pro
260 265 270

His His Val Glu Pro Leu Glu Arg Leu Glu Lys Leu Leu Thr Lys Glu
275 280 285

Gln Leu Lys Ile Trp Met Gly Lys Met Gln Lys Lys Ala Val Ala Ile
290 295 300

Ser Leu Pro Lys Gly Val Val Glu Val Thr His Asp Leu Gln Lys His
305 310 315 320

Leu Ala Gly Leu Gly Leu Thr Glu Ala Ile Asp Lys Asn Lys Ala Asp
325 330 335

Leu Ser Arg Met Ser Gly Lys Lys Asp Leu Tyr Leu Ala Ser Val Phe
340 345 350

His Ala Thr Ala Phe Glu Leu Asp Thr Asp Gly Asn Pro Phe Asp Gln
355 360 365

Asp Ile Tyr Gly Arg Glu Glu Leu Arg Ser Pro Lys Leu Phe Tyr Ala
370 375 380

Asp His Pro Phe Ile Phe Leu Val Arg Asp Thr Gln Ser Gly Ser Leu
385 390 395 400

Leu Phe Ile Gly Arg Leu Val Arg Pro Lys Gly Asp Lys Met Arg Asp
405 410 415

Glu Leu

<210> 32
<211> 476
<212> PRT
<213> Ovis aries

<400> 32

```
Met Ala Pro Ala Gly Leu Ser Leu Gly Ala Thr Ile Leu Cys Leu Leu
1               5                  10                  15

Ala Trp Ala Gly Leu Ala Ala Gly Asp Arg Val Tyr Ile His Pro Phe
            20                  25                  30

His Leu Leu Val His Ser Lys Ser Asn Cys Asp Gln Leu Glu Lys Pro
        35                  40                  45

Ser Val Glu Thr Pro Ala Asp Pro Thr Leu Thr Pro Val Pro Ile Gln
    50                  55                  60

Thr Lys Ser Ser Pro Val Asp Glu Glu Ala Leu Trp Glu Gln Leu Val
65                  70                  75                  80

Arg Ala Thr Glu Lys Leu Glu Ala Glu Asp Arg Leu Arg Ala Ser Glu
                85                  90                  95

Val Gly Leu Leu Leu Asn Phe Met Gly Phe His Val Tyr Lys Thr Leu
            100                 105                 110

Ser Glu Thr Trp Ser Val Ala Ser Gly Leu Val Phe Ser Pro Val Ala
        115                 120                 125

Leu Phe Ser Thr Leu Thr Ser Phe Tyr Thr Gly Ala Leu Asp Pro Thr
    130                 135                 140

Ala Ser Arg Leu Gln Ala Phe Leu Gly Val Pro Gly Glu Gly Gln Gly
145                 150                 155                 160

Cys Thr Ser Arg Leu Asp Gly Arg Lys Val Leu Ser Ser Leu Gln Thr
                165                 170                 175

Ile Gln Gly Leu Leu Val Ala Pro Gly Gly Ala Ser Ser Gln Ala Arg
            180                 185                 190

Leu Leu Leu Ser Thr Val Val Gly Leu Phe Thr Ala Pro Gly Leu His
        195                 200                 205

Leu Lys Gln Pro Phe Val Gln Gly Leu Ser Ser Phe Ala Pro Ile Thr
    210                 215                 220
```

Leu Pro Arg Ser Leu Asp Leu Ser Thr Asp Pro Asn Leu Ala Ala Glu
225 230 235 240

Lys Ile Asn Arg Phe Met His Ser Ala Thr Gly Trp Asn Met Gly Arg
245 250 255

Pro Leu Ala Ala Ala Ser Pro Asp Ser Thr Leu Leu Phe Asn Ala Tyr
260 265 270

Val His Phe Gln Gly Lys Met Lys Gly Phe Ser Leu Leu Pro Gly Leu
275 280 285

Thr Glu Phe Trp Val Asp Asn Thr Thr Ser Val Pro Val Pro Met Leu
290 295 300

Ser Gly Ser Gly Thr Phe His Tyr Trp Ser Asp Asn Gln Asn His Leu
305 310 315 320

Ser Met Thr Arg Val Pro Leu Ser Ala Asn Gly Tyr Leu Leu Leu Ile
325 330 335

Gln Pro His His Thr Leu Asp Leu Arg Lys Val Glu Ala Leu Ile Phe
340 345 350

Gln His Asn Phe Leu Thr Arg Met Lys Asn Leu Ser Pro Arg Ala Ile
355 360 365

His Leu Thr Val Pro Gln Leu Thr Leu Lys Ala Ser Tyr Asp Leu Gln
370 375 380

Asp Leu Leu Ala Gln Ala Lys Leu Pro Thr Leu Leu Gly Ala Glu Ala
385 390 395 400

Asn Leu Gly Lys Ile Ser Asp Ala Asn Leu Arg Val Gly Lys Val Leu
405 410 415

Asn Ser Val Leu Phe Glu Leu Lys Ala Asp Gly Glu Gln Ala Pro Glu
420 425 430

Ser Val Pro Gln Pro Ala Gly Pro Glu Ala Leu Glu Val Thr Leu Asn
435 440 445

Ser Pro Phe Leu Leu Ala Val Leu Glu Arg Ser Ser Gly Ala Leu His
450 455 460

Phe Leu Gly Arg Val Ser Arg Pro Leu Ser Ala Glu
465 470 475

<210> 33
<211> 397
<212> PRT
<213> Mus musculus

<400> 33

```
Met Asn Trp His Phe Pro Phe Phe Ile Leu Thr Thr Val Thr Leu Tyr
1               5                  10                  15

Ser Val His Ser Gln Phe Asn Ser Leu Ser Leu Glu Glu Leu Gly Ser
            20                  25                  30

Asn Thr Gly Ile Gln Val Phe Asn Gln Ile Ile Lys Ser Arg Pro His
        35                  40                  45

Glu Asn Val Val Val Ser Pro His Gly Ile Ala Ser Ile Leu Gly Met
    50                  55                  60

Leu Gln Leu Gly Ala Asp Gly Lys Thr Lys Lys Gln Leu Ser Thr Val
65                  70                  75                  80

Met Arg Tyr Asn Val Asn Gly Val Gly Lys Val Leu Lys Lys Ile Asn
                85                  90                  95

Lys Ala Ile Val Ser Lys Lys Asn Lys Asp Ile Val Thr Val Ala Asn
            100                 105                 110

Ala Val Phe Leu Arg Asn Gly Phe Lys Met Glu Val Pro Phe Ala Val
        115                 120                 125

Arg Asn Lys Asp Val Phe Gln Cys Glu Val Gln Asn Val Asn Phe Gln
    130                 135                 140

Asp Pro Ala Ser Ala Ser Glu Ser Ile Asn Phe Trp Val Lys Asn Glu
145                 150                 155                 160

Thr Arg Gly Met Ile Asp Asn Leu Leu Ser Pro Asn Leu Ile Asp Gly
                165                 170                 175

Ala Leu Thr Arg Leu Val Leu Val Asn Ala Val Tyr Phe Lys Gly Leu
            180                 185                 190

Trp Lys Ser Arg Phe Gln Pro Glu Ser Thr Lys Lys Arg Thr Phe Val
        195                 200                 205

Ala Gly Asp Gly Lys Ser Tyr Gln Val Pro Met Leu Ala Gln Leu Ser
    210                 215                 220
```

```
Val Phe Arg Ser Gly Ser Thr Arg Thr Pro Asn Gly Leu Trp Tyr Asn
225                 230                 235                 240

Phe Ile Glu Leu Pro Tyr His Gly Glu Ser Ile Ser Met Leu Ile Ala
                245                 250                 255

Leu Pro Thr Glu Ser Ser Thr Pro Leu Ser Ala Ile Ile Pro His Ile
            260                 265                 270

Thr Thr Lys Thr Ile Asp Ser Trp Met Asn Thr Met Val Pro Lys Arg
        275                 280                 285

Met Gln Leu Val Leu Pro Lys Phe Thr Ala Val Ala Gln Thr Asp Leu
    290                 295                 300

Lys Glu Pro Leu Lys Ala Leu Gly Ile Thr Glu Met Phe Glu Pro Ser
305                 310                 315                 320

Lys Ala Asn Phe Thr Lys Ile Thr Arg Ser Glu Ser Leu His Val Ser
                325                 330                 335

His Ile Leu Gln Lys Ala Lys Ile Glu Val Ser Glu Asp Gly Thr Lys
            340                 345                 350

Ala Ser Ala Ala Thr Thr Ala Ile Leu Ile Ala Arg Ser Ser Pro Pro
        355                 360                 365

Trp Phe Ile Val Asp Arg Pro Phe Leu Phe Ser Ile Arg His Asn Pro
    370                 375                 380

Thr Gly Ala Ile Leu Phe Leu Gly Gln Val Asn Lys Pro
385                 390                 395
```

<210> 34
<211> 397
<212> PRT
<213> Homo sapiens

<400> 34

```
Met Asp Ser Leu Ala Thr Ser Ile Asn Gln Phe Ala Leu Glu Leu Ser
1               5                   10                  15

Lys Lys Leu Ala Glu Ser Ala Gln Gly Lys Asn Ile Phe Phe Ser Ser
            20                  25                  30

Trp Ser Ile Ser Thr Ser Leu Thr Ile Val Tyr Leu Gly Ala Lys Gly
        35                  40                  45
```

```
Thr Thr Ala Ala Gln Met Ala Gln Val Leu Gln Phe Asn Arg Asp Gln
    50                  55                  60

Gly Val Lys Cys Asp Pro Glu Ser Glu Lys Lys Arg Lys Met Glu Phe
65                  70                  75                  80

Asn Leu Ser Asn Ser Glu Glu Ile His Ser Asp Phe Gln Thr Leu Ile
                85                  90                  95

Ser Glu Ile Leu Lys Pro Asn Asp Asp Tyr Leu Leu Lys Thr Ala Asn
            100                 105                 110

Ala Ile Tyr Gly Glu Lys Thr Tyr Ala Phe His Asn Lys Tyr Leu Glu
        115                 120                 125

Asp Met Lys Thr Tyr Phe Gly Ala Glu Pro Gln Pro Val Asn Phe Val
    130                 135                 140

Glu Ala Ser Asp Gln Ile Arg Lys Asp Ile Asn Ser Trp Val Glu Arg
145                 150                 155                 160

Gln Thr Glu Gly Lys Ile Gln Asn Leu Leu Pro Asp Asp Ser Val Asp
                165                 170                 175

Ser Thr Thr Arg Met Ile Leu Val Asn Ala Leu Tyr Phe Lys Gly Ile
            180                 185                 190

Trp Glu His Gln Phe Leu Val Gln Asn Thr Thr Glu Lys Pro Phe Arg
        195                 200                 205

Ile Asn Glu Thr Thr Ser Lys Pro Val Gln Met Met Phe Met Lys Lys
    210                 215                 220

Lys Leu His Ile Phe His Ile Glu Lys Pro Lys Ala Val Gly Leu Gln
225                 230                 235                 240

Leu Tyr Tyr Lys Ser Arg Asp Leu Ser Leu Leu Ile Leu Leu Pro Glu
                245                 250                 255

Asp Ile Asn Gly Leu Glu Gln Leu Glu Lys Ala Ile Thr Tyr Glu Lys
            260                 265                 270

Leu Asn Glu Trp Thr Ser Ala Asp Met Met Glu Leu Tyr Glu Val Gln
        275                 280                 285

Leu His Leu Pro Lys Phe Lys Leu Glu Asp Ser Tyr Asp Leu Lys Ser
    290                 295                 300
```

```
Thr Leu Ser Ser Met Gly Met Ser Asp Ala Phe Ser Gln Ser Lys Ala
305                 310                 315                 320

Asp Phe Ser Gly Met Ser Ser Ala Arg Asn Leu Phe Leu Ser Asn Val
                325                 330                 335

Phe His Lys Ala Phe Val Glu Ile Asn Glu Gln Gly Thr Glu Ala Ala
            340                 345                 350

Ala Gly Ser Gly Ser Glu Ile Asp Ile Arg Ile Arg Val Pro Ser Ile
        355                 360                 365

Glu Phe Asn Ala Asn His Pro Phe Leu Phe Phe Ile Arg His Asn Lys
    370                 375                 380

Thr Asn Thr Ile Leu Phe Tyr Gly Arg Leu Cys Ser Pro
385                 390                 395
```

<210> 35
<211> 376
<212> PRT
<213> Homo sapiens

<400> 35

```
Met Asp Val Leu Ala Glu Ala Asn Gly Thr Phe Ala Leu Asn Leu Leu
1               5                   10                  15

Lys Thr Leu Gly Lys Asp Asn Ser Lys Asn Val Phe Phe Ser Pro Met
            20                  25                  30

Ser Met Ser Cys Ala Leu Ala Met Val Tyr Met Gly Ala Lys Gly Asn
        35                  40                  45

Thr Ala Ala Gln Met Ala Gln Ile Leu Ser Phe Asn Lys Ser Gly Gly
    50                  55                  60

Gly Gly Asp Ile His Gln Gly Phe Gln Ser Leu Leu Thr Glu Val Asn
65                  70                  75                  80

Lys Thr Gly Thr Gln Tyr Leu Leu Arg Val Ala Asn Arg Leu Phe Gly
                85                  90                  95

Glu Lys Ser Cys Asp Phe Leu Ser Ser Phe Arg Asp Ser Cys Gln Lys
            100                 105                 110

Phe Tyr Gln Ala Glu Met Glu Glu Leu Asp Phe Ile Ser Ala Val Glu
        115                 120                 125
```

```
Lys Ser Arg Lys His Ile Asn Thr Trp Val Ala Glu Lys Thr Glu Gly
    130                 135                 140

Lys Ile Ala Glu Leu Leu Ser Pro Gly Ser Val Asp Pro Leu Thr Arg
145                 150                 155                 160

Leu Val Leu Val Asn Ala Val Tyr Phe Arg Gly Asn Trp Asp Gly Gln
                165                 170                 175

Phe Asp Lys Glu Asn Thr Glu Glu Arg Leu Phe Lys Val Ser Lys Asn
            180                 185                 190

Glu Glu Lys Pro Val Gln Met Met Phe Lys Gln Ser Thr Phe Lys Lys
        195                 200                 205

Thr Tyr Ile Gly Glu Ile Phe Thr Gln Ile Leu Val Leu Pro Tyr Val
    210                 215                 220

Gly Lys Glu Leu Asn Met Ile Ile Met Leu Pro Asp Glu Thr Thr Asp
225                 230                 235                 240

Leu Arg Thr Val Glu Lys Glu Leu Thr Tyr Glu Lys Phe Val Glu Trp
                245                 250                 255

Thr Arg Leu Asp Met Met Asp Glu Glu Glu Val Glu Val Ser Leu Pro
            260                 265                 270

Arg Phe Lys Leu Glu Glu Ser Tyr Asp Met Glu Ser Val Leu Arg Asn
        275                 280                 285

Leu Gly Met Thr Asp Ala Phe Glu Leu Gly Lys Ala Asp Phe Ser Gly
    290                 295                 300

Met Ser Gln Thr Asp Leu Ser Leu Ser Lys Val Val His Lys Ser Phe
305                 310                 315                 320

Val Glu Val Asn Glu Glu Gly Thr Glu Ala Ala Ala Ala Thr Ala Ala
                325                 330                 335

Ile Met Met Met Arg Cys Ala Arg Phe Val Pro Arg Phe Cys Ala Asp
            340                 345                 350

His Pro Phe Leu Phe Phe Ile Gln His Arg Lys Thr Asn Gly Ile Leu
        355                 360                 365

Phe Cys Gly Arg Phe Ser Ser Pro
```

370 375

<210> 36
<211> 406
<212> PRT
<213> Homo sapiens

<400> 36

Met Gln Leu Phe Leu Leu Leu Cys Leu Val Leu Leu Ser Pro Gln Gly
1 5 10 15

Ala Ser Leu His Arg His His Pro Arg Glu Met Lys Lys Arg Val Glu
20 25 30

Asp Leu His Val Gly Ala Thr Val Ala Pro Ser Ser Arg Arg Asp Phe
35 40 45

Thr Phe Asp Leu Tyr Arg Ala Leu Ala Ser Ala Ala Pro Ser Gln Asn
50 55 60

Ile Phe Phe Ser Pro Val Ser Ile Ser Met Ser Leu Ala Met Leu Ser
65 70 75 80

Leu Gly Ala Gly Ser Ser Thr Lys Met Gln Ile Leu Glu Gly Leu Gly
85 90 95

Leu Asn Leu Gln Lys Ser Ser Glu Lys Glu Leu His Arg Gly Phe Gln
100 105 110

Gln Leu Leu Gln Glu Leu Asn Gln Pro Arg Asp Gly Phe Gln Leu Ser
115 120 125

Leu Gly Asn Ala Leu Phe Thr Asp Leu Val Val Asp Leu Gln Asp Thr
130 135 140

Phe Val Ser Ala Met Lys Thr Leu Tyr Leu Ala Asp Thr Phe Pro Thr
145 150 155 160

Asn Phe Arg Asp Ser Ala Gly Ala Met Lys Gln Ile Asn Asp Tyr Val
165 170 175

Ala Lys Gln Thr Lys Gly Lys Ile Val Asp Leu Leu Lys Asn Leu Asp
180 185 190

Ser Asn Ala Val Val Ile Met Val Asn Tyr Ile Phe Phe Lys Ala Lys
195 200 205

Trp Glu Thr Ser Phe Asn His Lys Gly Thr Gln Glu Gln Asp Phe Tyr

210 215 220

Val Thr Ser Glu Thr Val Val Arg Val Pro Met Met Ser Arg Glu Asp
225 230 235 240

Gln Tyr His Tyr Leu Leu Asp Arg Asn Leu Ser Cys Arg Val Val Gly
245 250 255

Val Pro Tyr Gln Gly Asn Ala Thr Ala Leu Phe Ile Leu Pro Ser Glu
260 265 270

Gly Lys Met Gln Gln Val Glu Asn Gly Leu Ser Glu Lys Thr Leu Arg
275 280 285

Lys Trp Leu Lys Met Phe Lys Lys Arg Gln Leu Glu Leu Tyr Leu Pro
290 295 300

Lys Phe Ser Ile Glu Gly Ser Tyr Gln Leu Glu Lys Val Leu Pro Ser
305 310 315 320

Leu Gly Ile Ser Asn Val Phe Thr Ser His Ala Asp Leu Ser Gly Ile
325 330 335

Ser Asn His Ser Asn Ile Gln Val Ser Glu Met Val His Lys Ala Val
340 345 350

Val Glu Val Asp Glu Ser Gly Thr Arg Ala Ala Ala Ala Thr Gly Thr
355 360 365

Ile Phe Thr Phe Arg Ser Ala Arg Leu Asn Ser Gln Arg Leu Val Phe
370 375 380

Asn Arg Pro Phe Leu Met Phe Ile Val Asp Asn Asn Ile Leu Phe Leu
385 390 395 400

Gly Lys Val Asn Arg Pro
405

<210> 37
<211> 491
<212> PRT
<213> Homo sapiens

<400> 37

Met Ala Leu Leu Trp Gly Leu Leu Val Leu Ser Trp Ser Cys Leu Gln
1 5 10 15

Gly Pro Cys Ser Val Phe Ser Pro Val Ser Ala Met Glu Pro Leu Gly

```
            20                  25                  30

Arg Gln Leu Thr Ser Gly Pro Asn Gln Glu Gln Val Ser Pro Leu Thr
        35                  40                  45

Leu Leu Lys Leu Gly Asn Gln Glu Pro Gly Gly Gln Thr Ala Leu Lys
    50                  55                  60

Ser Pro Pro Gly Val Cys Ser Arg Asp Pro Thr Pro Glu Gln Thr His
65                  70                  75                  80

Arg Leu Ala Arg Ala Met Met Ala Phe Thr Ala Asp Leu Phe Ser Leu
                85                  90                  95

Val Ala Gln Thr Ser Thr Cys Pro Asn Leu Ile Leu Ser Pro Leu Ser
            100                 105                 110

Val Ala Leu Ala Leu Ser His Leu Ala Leu Gly Ala Gln Asn His Thr
        115                 120                 125

Leu Gln Arg Leu Gln Gln Val Leu His Ala Gly Ser Gly Pro Cys Leu
    130                 135                 140

Pro His Leu Leu Ser Arg Leu Cys Gln Asp Leu Gly Pro Gly Ala Phe
145                 150                 155                 160

Arg Leu Ala Ala Arg Met Tyr Leu Gln Lys Gly Phe Pro Ile Lys Glu
                165                 170                 175

Asp Phe Leu Glu Gln Ser Glu Gln Leu Phe Gly Ala Lys Pro Val Ser
            180                 185                 190

Leu Thr Gly Lys Gln Glu Asp Asp Leu Ala Asn Ile Asn Gln Trp Val
        195                 200                 205

Lys Glu Ala Thr Glu Gly Lys Ile Gln Glu Phe Leu Ser Gly Leu Pro
    210                 215                 220

Glu Asp Thr Val Leu Leu Leu Leu Asn Ala Ile His Phe Gln Gly Phe
225                 230                 235                 240

Trp Arg Asn Lys Phe Asp Pro Ser Leu Thr Gln Arg Asp Ser Phe His
                245                 250                 255

Leu Asp Glu Gln Phe Thr Val Pro Val Glu Met Met Gln Ala Arg Thr
            260                 265                 270
```

Tyr Pro Leu Arg Trp Phe Leu Leu Glu Gln Pro Glu Ile Gln Val Ala
275 280 285

His Phe Pro Phe Lys Asn Asn Met Ser Phe Val Val Leu Val Pro Thr
290 295 300

His Phe Glu Trp Asn Val Ser Gln Val Leu Ala Asn Leu Ser Trp Asp
305 310 315 320

Thr Leu His Pro Pro Leu Val Trp Glu Arg Pro Thr Lys Val Arg Leu
325 330 335

Pro Lys Leu Tyr Leu Lys His Gln Met Asp Leu Val Ala Thr Leu Ser
340 345 350

Gln Leu Gly Leu Gln Glu Leu Phe Gln Ala Pro Asp Leu Arg Gly Ile
355 360 365

Ser Glu Gln Ser Leu Val Val Ser Gly Val Gln His Gln Ser Thr Leu
370 375 380

Glu Leu Ser Glu Val Gly Val Glu Ala Ala Ala Ala Thr Ser Ile Ala
385 390 395 400

Met Ser Arg Met Ser Leu Ser Ser Phe Ser Val Asn Arg Pro Phe Leu
405 410 415

Phe Phe Ile Phe Glu Asp Thr Thr Gly Leu Pro Leu Phe Val Gly Ser
420 425 430

Val Arg Asn Pro Asn Pro Ser Ala Pro Arg Glu Leu Lys Glu Gln Gln
435 440 445

Asp Ser Pro Gly Asn Lys Asp Phe Leu Gln Ser Leu Lys Gly Phe Pro
450 455 460

Arg Gly Asp Lys Leu Phe Gly Pro Asp Leu Lys Leu Val Pro Pro Met
465 470 475 480

Glu Glu Asp Tyr Pro Gln Phe Gly Ser Pro Lys
485 490

<210> 38
<211> 375
<212> PRT
<213> Homo sapiens

<400> 38

```
Met Asp Ala Leu Gln Leu Ala Asn Ser Ala Phe Ala Val Asp Leu Phe
1               5                  10                  15

Lys Gln Leu Cys Glu Lys Glu Pro Leu Gly Asn Val Leu Phe Ser Pro
            20                  25                  30

Ile Cys Leu Ser Thr Ser Leu Ser Leu Ala Gln Val Gly Ala Lys Gly
        35                  40                  45

Asp Thr Ala Asn Glu Ile Gly Gln Val Leu His Phe Glu Asn Val Lys
    50                  55                  60

Asp Ile Pro Phe Gly Phe Gln Thr Val Thr Ser Asp Val Asn Lys Leu
65                  70                  75                  80

Ser Ser Phe Tyr Ser Leu Lys Leu Ile Lys Arg Leu Tyr Val Asp Lys
                85                  90                  95

Ser Leu Asn Leu Ser Thr Glu Phe Ile Ser Ser Thr Lys Arg Pro Tyr
            100                 105                 110

Ala Lys Glu Leu Glu Thr Val Asp Phe Lys Asp Lys Leu Glu Glu Thr
        115                 120                 125

Lys Gly Gln Ile Asn Asn Ser Ile Lys Asp Leu Thr Asp Gly His Phe
    130                 135                 140

Glu Asn Ile Leu Ala Asp Asn Ser Val Asn Asp Gln Thr Lys Ile Leu
145                 150                 155                 160

Val Val Asn Ala Ala Tyr Phe Val Gly Lys Trp Met Lys Lys Phe Pro
                165                 170                 175

Glu Ser Glu Thr Lys Glu Cys Pro Phe Arg Leu Asn Lys Thr Asp Thr
            180                 185                 190

Lys Pro Val Gln Met Met Asn Met Glu Ala Thr Phe Cys Met Gly Asn
        195                 200                 205

Ile Asp Ser Ile Asn Cys Lys Ile Ile Glu Leu Pro Phe Gln Asn Lys
    210                 215                 220

His Leu Ser Met Phe Ile Leu Leu Pro Lys Asp Val Glu Asp Glu Ser
225                 230                 235                 240

Thr Gly Leu Glu Lys Ile Glu Lys Gln Leu Asn Ser Glu Ser Leu Ser
                245                 250                 255
```

```
Gln Trp Thr Asn Pro Ser Thr Met Ala Asn Ala Lys Val Lys Leu Ser
            260                 265                 270

Ile Pro Lys Phe Lys Val Glu Lys Met Ile Asp Pro Lys Ala Cys Leu
        275                 280                 285

Glu Asn Leu Gly Leu Lys His Ile Phe Ser Glu Asp Thr Ser Asp Phe
    290                 295                 300

Ser Gly Met Ser Glu Thr Lys Gly Val Ala Leu Ser Asn Val Ile His
305                 310                 315                 320

Lys Val Cys Leu Glu Ile Thr Glu Asp Gly Gly Asp Ser Ile Glu Val
                325                 330                 335

Pro Gly Ala Arg Ile Leu Gln His Lys Asp Glu Leu Asn Ala Asp His
            340                 345                 350

Pro Phe Ile Tyr Ile Ile Arg His Asn Lys Thr Arg Asn Ile Ile Phe
        355                 360                 365

Phe Gly Lys Phe Cys Ser Pro
    370                 375
```

<210> 39
<211> 416
<212> PRT
<213> Rattus norvegicus

<400> 39

```
Met Ala Phe Ile Ala Ala Leu Gly Leu Leu Met Ala Gly Ile Cys Pro
1               5                   10                  15

Ala Val Leu Cys Asp Gly Ile Leu Gly Arg Asp Thr Leu Pro His Glu
            20                  25                  30

Asp Gln Gly Lys Gly Arg Gln Leu His Ser Leu Thr Leu Ala Ser Ile
        35                  40                  45

Asn Thr Asp Phe Thr Leu Ser Leu Tyr Lys Lys Leu Ala Leu Arg Asn
    50                  55                  60

Pro Asp Lys Asn Val Val Phe Ser Pro Leu Ser Ile Ser Ala Ala Leu
65                  70                  75                  80

Ala Ile Leu Ser Leu Gly Ala Lys Asp Ser Thr Met Glu Glu Ile Leu
                85                  90                  95
```

```
Glu Gly Leu Lys Phe Asn Leu Thr Glu Ile Thr Glu Glu Glu Ile His
            100                 105                 110

Gln Gly Phe Gly His Leu Leu Gln Arg Leu Ser Gln Pro Glu Asp Gln
        115                 120                 125

Ala Glu Ile Asn Thr Gly Ser Ala Leu Phe Ile Asp Lys Glu Gln Pro
    130                 135                 140

Ile Leu Ser Glu Phe Gln Glu Lys Thr Arg Ala Leu Tyr Gln Ala Glu
145                 150                 155                 160

Ala Phe Val Ala Asp Phe Lys Gln Cys Asn Glu Ala Lys Lys Phe Ile
                165                 170                 175

Asn Asp Tyr Val Ser Asn Gln Thr Gln Gly Lys Ile Ala Glu Leu Phe
            180                 185                 190

Ser Glu Leu Asp Glu Arg Thr Ser Met Val Leu Val Asn Tyr Leu Leu
        195                 200                 205

Phe Lys Gly Lys Trp Lys Val Pro Phe Asn Pro Asn Asp Thr Phe Glu
    210                 215                 220

Ser Glu Phe Tyr Leu Asp Glu Lys Arg Ser Val Lys Val Pro Met Met
225                 230                 235                 240

Lys Ile Lys Asp Leu Thr Thr Pro Tyr Ile Arg Asp Glu Glu Leu Ser
                245                 250                 255

Cys Ser Val Leu Glu Leu Lys Tyr Thr Gly Asn Ala Ser Ala Leu Phe
            260                 265                 270

Ile Leu Pro Asp Gln Gly Lys Met Gln Gln Val Glu Ser Ser Leu Gln
        275                 280                 285

Pro Glu Thr Leu Lys Lys Trp Lys Asp Ser Leu Arg Pro Arg Ile Ile
    290                 295                 300

Ser Glu Leu Arg Met Pro Lys Phe Ser Ile Ser Thr Asp Tyr Asn Leu
305                 310                 315                 320

Glu Glu Val Leu Pro Glu Leu Gly Ile Arg Lys Ile Phe Ser Gln Gln
                325                 330                 335

Ala Asp Leu Ser Arg Ile Thr Gly Thr Lys Asn Leu His Val Ser Gln
            340                 345                 350
```

Val Val His Lys Ala Val Leu Asp Val Asp Glu Thr Gly Thr Glu Gly
355 360 365

Ala Ala Ala Thr Ala Val Thr Ala Ala Leu Lys Ser Leu Pro Gln Thr
370 375 380

Ile Pro Leu Leu Asn Phe Asn Arg Pro Phe Met Leu Val Ile Thr Asp
385 390 395 400

Asn Asn Gly Gln Ser Val Phe Phe Met Gly Lys Val Thr Asn Pro Met
405 410 415

<210> 40
<211> 18
<212> PRT
<213> Equus caballus

<400> 40

Leu Ala Met Leu Met Pro Glu Glu Asn Phe Asn Ala Asp His Pro Phe
1 5 10 15

Ile Phe

<210> 41
<211> 416
<212> PRT
<213> Homo sapiens

<400> 41

Met Gln Ala Leu Val Leu Leu Leu Trp Thr Gly Ala Leu Leu Gly Phe
1 5 10 15

Gly Arg Cys Gln Asn Ala Gly Gln Glu Ala Gly Ser Leu Thr Pro Glu
20 25 30

Ser Thr Gly Ala Pro Val Glu Glu Glu Asp Pro Phe Phe Lys Val Pro
35 40 45

Val Asn Lys Leu Ala Ala Ala Val Ser Asn Phe Gly Tyr Asp Leu Tyr
50 55 60

Arg Val Arg Ser Gly Glu Ser Pro Thr Ala Asn Val Leu Leu Ser Pro
65 70 75 80

Leu Ser Val Ala Thr Ala Leu Ser Ala Leu Ser Leu Gly Ala Glu Gln
85 90 95

```
Arg Thr Glu Ser Asn Ile His Arg Ala Leu Tyr Tyr Asp Leu Ile Ser
            100                 105                 110

Asn Pro Asp Ile His Gly Thr Tyr Lys Asp Leu Leu Ala Ser Val Thr
        115                 120                 125

Ala Pro Gln Lys Asn Leu Lys Ser Ala Ser Arg Ile Ile Phe Glu Arg
    130                 135                 140

Lys Leu Arg Ile Lys Ala Ser Phe Ile Pro Pro Leu Glu Lys Ser Tyr
145                 150                 155                 160

Gly Thr Arg Pro Arg Ile Leu Thr Gly Asn Ser Arg Val Asp Leu Gln
                165                 170                 175

Glu Ile Asn Asn Trp Val Gln Ala Gln Met Lys Gly Lys Val Ala Arg
            180                 185                 190

Ser Thr Arg Glu Met Pro Ser Glu Ile Ser Ile Phe Leu Leu Gly Val
        195                 200                 205

Ala Tyr Phe Lys Gly Gln Trp Val Thr Lys Phe Asp Ser Arg Lys Thr
    210                 215                 220

Ser Leu Glu Asp Phe Tyr Leu Asp Glu Glu Arg Thr Val Lys Val Pro
225                 230                 235                 240

Met Met Ser Asp Pro Gln Ala Val Leu Arg Tyr Gly Leu Asp Ser Asp
                245                 250                 255

Leu Asn Cys Lys Ile Ala Gln Leu Pro Leu Thr Gly Ser Thr Ser Ile
            260                 265                 270

Ile Phe Phe Leu Pro Gln Lys Val Thr Gln Asn Leu Thr Leu Ile Glu
        275                 280                 285

Glu Ser Leu Thr Ser Glu Phe Ile His Asp Ile Asp Arg Glu Leu Lys
    290                 295                 300

Thr Val Gln Ala Val Leu Thr Ile Pro Lys Leu Lys Leu Ser Tyr Glu
305                 310                 315                 320

Gly Glu Leu Thr Lys Ser Val Gln Glu Leu Lys Leu Gln Ser Leu Phe
                325                 330                 335

Asp Ala Pro Asp Phe Ser Lys Ile Thr Gly Lys Pro Ile Lys Leu Thr
            340                 345                 350
```

```
Gln Val Glu His Arg Val Gly Phe Glu Trp Asn Glu Asp Gly Ala Gly
        355                 360                 365

Thr Asn Ser Ser Pro Gly Val Gln Pro Ala Arg Leu Thr Phe Pro Leu
    370                 375                 380

Asp Tyr His Leu Asn Gln Pro Phe Ile Phe Val Leu Arg Asp Thr Asp
385                 390                 395                 400

Thr Gly Ala Leu Leu Phe Ile Gly Lys Ile Leu Asp Pro Arg Gly Thr
                405                 410                 415
```

<210> 42
<211> 418
<212> PRT
<213> Homo sapiens

<400> 42

```
Met Gln Ala Leu Val Leu Leu Leu Cys Ile Gly Ala Leu Leu Gly His
1               5                   10                  15

Ser Ser Cys Gln Asn Pro Ala Ser Pro Pro Glu Glu Gly Ser Pro Asp
            20                  25                  30

Pro Asp Ser Thr Gly Ala Leu Val Glu Glu Glu Asp Pro Phe Phe Lys
        35                  40                  45

Val Pro Val Asn Lys Leu Ala Ala Ala Val Ser Asn Phe Gly Tyr Asp
    50                  55                  60

Leu Tyr Arg Val Arg Ser Ser Met Ser Pro Thr Thr Asn Val Leu Leu
65                  70                  75                  80

Ser Pro Leu Ser Val Ala Thr Ala Leu Ser Ala Leu Ser Leu Gly Ala
                85                  90                  95

Asp Glu Arg Thr Glu Ser Ile Ile His Arg Ala Leu Tyr Tyr Asp Leu
            100                 105                 110

Ile Ser Ser Pro Asp Ile His Gly Thr Tyr Lys Glu Leu Leu Asp Thr
        115                 120                 125

Val Thr Ala Pro Gln Lys Asn Leu Lys Ser Ala Ser Arg Ile Val Phe
    130                 135                 140

Glu Lys Lys Leu Arg Ile Lys Ser Ser Phe Val Ala Pro Leu Glu Lys
145                 150                 155                 160
```

```
Ser Tyr Gly Thr Arg Pro Arg Val Leu Thr Gly Asn Pro Arg Leu Asp
                165                 170                 175

Leu Gln Glu Ile Asn Asn Trp Val Gln Ala Gln Met Lys Gly Lys Leu
            180                 185                 190

Ala Arg Ser Thr Lys Glu Ile Pro Asp Glu Ile Ser Ile Leu Leu Leu
        195                 200                 205

Gly Val Ala His Phe Lys Gly Gln Trp Val Thr Lys Phe Asp Ser Arg
    210                 215                 220

Lys Thr Ser Leu Glu Asp Phe Tyr Leu Asp Glu Glu Arg Thr Val Arg
225                 230                 235                 240

Val Pro Met Met Ser Asp Pro Lys Ala Val Leu Arg Tyr Gly Leu Asp
                245                 250                 255

Ser Asp Leu Ser Cys Lys Ile Ala Gln Leu Pro Leu Thr Gly Ser Met
            260                 265                 270

Ser Ile Ile Phe Phe Leu Pro Leu Lys Val Thr Gln Asn Leu Thr Leu
        275                 280                 285

Ile Glu Glu Ser Leu Thr Ser Glu Phe Ile His Asp Ile Asp Arg Glu
    290                 295                 300

Leu Lys Thr Val Gln Ala Val Leu Thr Val Pro Lys Leu Lys Leu Ser
305                 310                 315                 320

Tyr Glu Gly Glu Val Thr Lys Ser Leu Gln Glu Met Lys Leu Gln Ser
                325                 330                 335

Leu Phe Asp Ser Pro Asp Phe Ser Lys Ile Thr Gly Lys Pro Ile Lys
            340                 345                 350

Leu Thr Gln Val Glu His Arg Ala Gly Phe Glu Trp Asn Glu Asp Gly
        355                 360                 365

Ala Gly Thr Thr Pro Ser Pro Gly Leu Gln Pro Ala His Leu Thr Phe
    370                 375                 380

Pro Leu Asp Tyr His Leu Asn Gln Pro Phe Ile Phe Val Leu Arg Asp
385                 390                 395                 400

Thr Asp Thr Gly Ala Leu Leu Phe Ile Gly Lys Ile Leu Asp Pro Arg
```

405 410 415

Gly Pro

<210> 43
<211> 415
<212> PRT
<213> Homo sapiens

<400> 43

Met Glu Asp Leu Cys Val Ala Asn Thr Leu Phe Ala Leu Asn Leu Phe
1 5 10 15

Lys His Leu Ala Lys Ala Ser Pro Thr Gln Asn Leu Phe Leu Ser Pro
20 25 30

Trp Ser Ile Ser Ser Thr Met Ala Met Val Tyr Met Gly Ser Arg Gly
35 40 45

Ser Thr Glu Asp Gln Met Ala Lys Val Leu Gln Phe Asn Glu Val Gly
50 55 60

Ala Asn Ala Val Thr Pro Met Thr Pro Glu Asn Phe Thr Ser Cys Gly
65 70 75 80

Phe Met Gln Gln Ile Gln Lys Gly Ser Tyr Pro Asp Ala Ile Leu Gln
85 90 95

Ala Gln Ala Ala Asp Lys Ile His Ser Ser Phe Arg Ser Leu Ser Ser
100 105 110

Ala Ile Asn Ala Ser Thr Gly Asn Tyr Leu Leu Glu Ser Val Asn Lys
115 120 125

Leu Phe Gly Glu Lys Ser Ala Ser Phe Arg Glu Glu Tyr Ile Arg Leu
130 135 140

Cys Gln Lys Tyr Tyr Ser Ser Glu Pro Gln Ala Val Asp Phe Leu Glu
145 150 155 160

Cys Ala Glu Glu Ala Arg Lys Lys Ile Asn Ser Trp Val Lys Thr Gln
165 170 175

Thr Lys Gly Lys Ile Pro Asn Leu Leu Pro Glu Gly Ser Val Asp Gly
180 185 190

Asp Thr Arg Met Val Leu Val Asn Ala Val Tyr Phe Lys Gly Lys Trp

195 200 205

Lys Thr Pro Phe Glu Lys Lys Leu Asn Gly Leu Tyr Pro Phe Arg Val
210 215 220

Asn Ser Ala Gln Arg Thr Pro Val Gln Met Met Tyr Leu Arg Glu Lys
225 230 235 240

Leu Asn Ile Gly Tyr Ile Glu Asp Leu Lys Ala Gln Ile Leu Glu Leu
245 250 255

Pro Tyr Ala Gly Asp Val Ser Met Phe Leu Leu Leu Pro Asp Glu Ile
260 265 270

Ala Asp Val Ser Thr Gly Leu Glu Leu Leu Glu Ser Glu Ile Thr Tyr
275 280 285

Asp Lys Leu Asn Lys Trp Thr Ser Lys Asp Lys Met Ala Glu Asp Glu
290 295 300

Val Glu Val Tyr Ile Pro Gln Phe Lys Leu Glu Glu His Tyr Glu Leu
305 310 315 320

Arg Ser Ile Leu Arg Ser Met Gly Met Glu Asp Ala Phe Asn Lys Gly
325 330 335

Arg Ala Asn Phe Ser Gly Met Ser Glu Arg Asn Asp Leu Phe Leu Ser
340 345 350

Glu Val Phe His Gln Ala Met Val Asp Val Asn Glu Glu Gly Thr Glu
355 360 365

Ala Ala Ala Gly Thr Gly Gly Val Met Thr Gly Arg Thr Gly His Gly
370 375 380

Gly Pro Gln Phe Val Ala Asp His Pro Phe Leu Phe Leu Ile Met His
385 390 395 400

Lys Ile Thr Asn Cys Ile Leu Phe Phe Gly Arg Phe Ser Ser Pro
405 410 415

<210> 44
<211> 415
<212> PRT
<213> Homo sapiens

<400> 44

Met Ser Pro Phe Leu Tyr Leu Val Leu Leu Val Leu Gly Leu His Ala

1 5 10 15

Thr Ile His Cys Ala Ser Pro Glu Gly Lys Val Thr Ala Cys His Ser
20 25 30

Ser Gln Pro Asn Ala Thr Leu Tyr Lys Met Ser Ser Ile Asn Ala Asp
35 40 45

Phe Ala Phe Asn Leu Tyr Arg Arg Phe Thr Val Glu Thr Pro Asp Lys
50 55 60

Asn Ile Phe Phe Ser Pro Val Ser Ile Ser Ala Ala Leu Val Met Leu
65 70 75 80

Ser Phe Gly Ala Cys Cys Ser Thr Gln Thr Glu Ile Val Glu Thr Leu
85 90 95

Gly Phe Asn Leu Thr Asp Thr Pro Met Val Glu Ile Gln His Gly Phe
100 105 110

Gln His Leu Ile Cys Ser Leu Asn Phe Pro Lys Lys Glu Leu Glu Leu
115 120 125

Gln Ile Gly Asn Ala Leu Phe Ile Gly Lys His Leu Lys Pro Leu Ala
130 135 140

Lys Phe Leu Asn Asp Val Lys Thr Leu Tyr Glu Thr Glu Val Phe Ser
145 150 155 160

Thr Asp Phe Ser Asn Ile Ser Ala Ala Lys Gln Glu Ile Asn Ser His
165 170 175

Val Glu Met Gln Thr Lys Gly Lys Val Val Gly Leu Ile Gln Asp Leu
180 185 190

Lys Pro Asn Thr Ile Met Val Leu Val Asn Tyr Ile His Phe Lys Ala
195 200 205

Gln Trp Ala Asn Pro Phe Asp Pro Ser Lys Thr Glu Asp Ser Ser Ser
210 215 220

Phe Leu Ile Asp Lys Thr Thr Thr Val Gln Val Pro Met Met His Gln
225 230 235 240

Met Glu Gln Tyr Tyr His Leu Val Asp Met Glu Leu Asn Cys Thr Val
245 250 255

```
Leu Gln Met Asp Tyr Ser Lys Asn Ala Leu Ala Leu Phe Val Leu Pro
            260                 265                 270

Lys Glu Gly Gln Met Glu Ser Val Glu Ala Ala Met Ser Ser Lys Thr
        275                 280                 285

Leu Lys Lys Trp Asn Arg Leu Leu Gln Lys Gly Trp Val Asp Leu Phe
    290                 295                 300

Val Pro Lys Phe Ser Ile Ser Ala Thr Tyr Asp Leu Gly Ala Thr Leu
305                 310                 315                 320

Leu Lys Met Gly Ile Gln His Ala Tyr Ser Glu Asn Ala Asp Phe Ser
                325                 330                 335

Gly Leu Thr Glu Asp Asn Gly Leu Lys Leu Ser Asn Ala Ala His Lys
            340                 345                 350

Ala Val Leu His Ile Gly Glu Lys Gly Thr Glu Ala Ala Ala Val Pro
        355                 360                 365

Glu Val Glu Leu Ser Asp Gln Pro Glu Asn Thr Phe Leu His Pro Ile
    370                 375                 380

Ile Gln Ile Asp Arg Ser Phe Met Leu Leu Ile Leu Glu Arg Ser Thr
385                 390                 395                 400

Arg Ser Ile Leu Phe Leu Gly Lys Val Val Asn Pro Thr Glu Ala
                405                 410                 415
```

<210> 45
<211> 480
<212> PRT
<213> Homo sapiens

<400> 45

```
Met Gln His Arg Pro His Leu Leu Leu Ile Ser Leu Thr Ile Met Ser
1               5                   10                  15

Val Cys Gly Gly Ser Asn Gly Leu Thr Asp Gln Leu Asn Asn Lys Asn
            20                  25                  30

Leu Thr Met Pro Leu Leu Pro Ile Glu Phe His Lys Glu Asn Thr Val
        35                  40                  45

Thr Asn Asp Trp Ile Pro Glu Gly Glu Glu Asp Asp Asp Tyr Leu Asp
    50                  55                  60
```

```
Leu Glu Lys Leu Leu Ser Glu Asp Asp Asp Tyr Ile Asp Ile Ile Asp
65                  70                  75                  80

Ala Val Ser Pro Thr Asp Ser Glu Ala Ser Ala Gly Asn Ile Leu Gln
                85                  90                  95

Leu Phe Gln Gly Lys Ser Arg Ile Gln Arg Leu Asn Ile Leu Asn Ala
            100                 105                 110

Lys Phe Ala Phe Ser Leu Tyr Arg Ala Leu Lys Asp Gln Ala Asn Ala
        115                 120                 125

Phe Asp Asn Ile Phe Ile Ala Pro Val Gly Ile Ser Thr Ala Met Gly
    130                 135                 140

Met Ile Ser Leu Gly Leu Lys Gly Glu Thr His Glu Gln Val His Ser
145                 150                 155                 160

Val Leu His Phe Arg Asp Phe Val Asn Ala Ser Ser Lys Tyr Glu Ile
                165                 170                 175

Leu Thr Ile His Asn Leu Phe Arg Lys Leu Thr His Arg Leu Phe Arg
            180                 185                 190

Arg Asn Phe Gly Tyr Thr Leu Arg Ser Val Asn Asp Leu Tyr Val Gln
        195                 200                 205

Lys Gln Phe Pro Ile Arg Glu Asp Phe Lys Ala Lys Val Arg Glu Tyr
    210                 215                 220

Tyr Phe Ala Glu Ala Gln Ala Ala Asp Phe Ser Asp Pro Ala Phe Ile
225                 230                 235                 240

Ser Lys Ala Asn Asn His Ile Leu Lys Val Thr Lys Gly Leu Ile Lys
                245                 250                 255

Glu Ala Leu Glu Asn Val Asp Pro Ala Thr Gln Met Met Ile Leu Asn
            260                 265                 270

Cys Ile Tyr Phe Lys Gly Thr Trp Val Asn Lys Phe Pro Val Glu Met
        275                 280                 285

Thr His Asn His Asn Phe Arg Leu Asn Glu Arg Glu Val Val Lys Val
    290                 295                 300

Ser Met Met Gln Thr Lys Gly Asn Phe Leu Ala Ala Asn Asp Gln Glu
305                 310                 315                 320
```

```
Leu Ala Cys Asp Val Leu Gln Leu Glu Tyr Val Gly Gly Ile Ser Met
                325                 330                 335

Leu Ile Val Val Pro His Lys Leu Ser Gly Met Lys Thr Leu Glu Ala
            340                 345                 350

Gln Leu Thr Pro Gln Val Val Glu Arg Trp Gln Lys Ser Met Thr Asn
        355                 360                 365

Arg Thr Arg Glu Val Leu Leu Pro Lys Phe Lys Leu Glu Lys Asn Tyr
    370                 375                 380

Asn Leu Val Glu Ala Leu Lys Ser Met Gly Val Thr Glu Leu Phe Asp
385                 390                 395                 400

Lys Asn Gly Asn Met Ser Gly Ile Ser Asp Gln Gly Ile Thr Met Asp
                405                 410                 415

Leu Phe Lys His Gln Gly Thr Ile Thr Val Asn Glu Glu Gly Thr Gln
            420                 425                 430

Ala Ala Ala Val Thr Thr Val Gly Phe Met Pro Leu Ser Thr Gln Val
        435                 440                 445

Arg Phe Thr Val Asp Arg Pro Phe Leu Phe Leu Val Tyr Glu His Arg
    450                 455                 460

Thr Ser Cys Leu Leu Phe Met Gly Lys Val Ala Asn Pro Val Arg Ser
465                 470                 475                 480
```

<210> 46
<211> 499
<212> PRT
<213> Homo sapiens

<400> 46

```
Met Lys His Ser Leu Asn Ala Leu Leu Ile Phe Leu Ile Ile Thr Ser
1               5                   10                  15

Ala Trp Gly Gly Ser Lys Gly Pro Leu Asp Gln Leu Glu Lys Gly Gly
            20                  25                  30

Glu Thr Ala Gln Ser Ala Asp Pro Gln Trp Glu Gln Leu Asn Asn Lys
        35                  40                  45

Asn Leu Ser Met Pro Leu Leu Pro Ala Asp Phe His Lys Glu Asn Thr
    50                  55                  60
```

Val Thr Asn Asp Trp Ile Pro Glu Gly Glu Glu Asp Asp Asp Tyr Leu
65 70 75 80

Asp Leu Glu Lys Ile Phe Ser Glu Asp Asp Asp Tyr Ile Asp Ile Val
85 90 95

Asp Ser Leu Ser Val Ser Pro Thr Asp Ser Asp Val Ser Ala Gly Asn
100 105 110

Ile Leu Gln Leu Phe His Gly Lys Ser Arg Ile Gln Arg Leu Asn Ile
115 120 125

Leu Asn Ala Lys Phe Ala Phe Asn Leu Tyr Arg Val Leu Lys Asp Gln
130 135 140

Val Asn Thr Phe Asp Asn Ile Phe Ile Ala Pro Val Gly Ile Ser Thr
145 150 155 160

Ala Met Gly Met Ile Ser Leu Gly Leu Lys Gly Glu Thr His Glu Gln
165 170 175

Val His Ser Ile Leu His Phe Lys Asp Phe Val Asn Ala Ser Ser Lys
180 185 190

Tyr Glu Ile Thr Thr Ile His Asn Leu Phe Arg Lys Leu Thr His Arg
195 200 205

Leu Phe Arg Arg Asn Phe Gly Tyr Thr Leu Arg Ser Val Asn Asp Leu
210 215 220

Tyr Ile Gln Lys Gln Phe Pro Ile Leu Leu Asp Phe Lys Thr Lys Val
225 230 235 240

Arg Glu Tyr Tyr Phe Ala Glu Ala Gln Ile Ala Asp Phe Ser Asp Pro
245 250 255

Ala Phe Ile Ser Lys Thr Asn Asn His Ile Met Lys Leu Thr Lys Gly
260 265 270

Leu Ile Lys Asp Ala Leu Glu Asn Ile Asp Pro Ala Thr Gln Met Met
275 280 285

Ile Leu Asn Cys Ile Tyr Phe Lys Gly Ser Trp Val Asn Lys Phe Pro
290 295 300

Val Glu Met Thr His Asn His Asn Phe Arg Leu Asn Glu Arg Glu Val
305 310 315 320

Val Lys Val Ser Met Met Gln Thr Lys Gly Asn Phe Leu Ala Ala Asn
325 330 335

Asp Gln Glu Leu Asp Cys Asp Ile Leu Gln Leu Glu Tyr Val Gly Gly
340 345 350

Ile Ser Met Leu Ile Val Val Pro His Lys Met Ser Gly Met Lys Thr
355 360 365

Leu Glu Ala Gln Leu Thr Pro Arg Val Val Glu Arg Trp Gln Lys Ser
370 375 380

Met Thr Asn Arg Thr Arg Glu Val Leu Leu Pro Lys Phe Lys Leu Glu
385 390 395 400

Lys Asn Tyr Asn Leu Val Glu Ser Leu Lys Leu Met Gly Ile Arg Met
405 410 415

Leu Phe Asp Lys Asn Gly Asn Met Ala Gly Ile Ser Asp Gln Arg Ile
420 425 430

Ala Ile Asp Leu Phe Lys His Gln Gly Thr Ile Thr Val Asn Glu Glu
435 440 445

Gly Thr Gln Ala Thr Thr Val Thr Thr Val Gly Phe Met Pro Leu Ser
450 455 460

Thr Gln Val Arg Phe Thr Val Asp Arg Pro Phe Leu Phe Leu Ile Tyr
465 470 475 480

Glu His Arg Thr Ser Cys Leu Leu Phe Met Gly Arg Val Ala Asn Pro
485 490 495

Ser Arg Ser

<210> 47
<211> 464
<212> PRT
<213> Homo sapiens

<400> 47

Met Tyr Ser Asn Val Ile Gly Thr Val Thr Ser Gly Lys Arg Lys Val
1 5 10 15

Tyr Leu Leu Ser Leu Leu Leu Ile Gly Phe Trp Asp Cys Val Thr Cys
20 25 30

His Gly Ser Pro Val Asp Ile Cys Thr Ala Lys Pro Arg Asp Ile Pro
35 40 45

Met Asn Pro Met Cys Ile Tyr Arg Ser Pro Glu Lys Lys Ala Thr Glu
50 55 60

Asp Glu Gly Ser Glu Gln Lys Ile Pro Glu Ala Thr Asn Arg Arg Val
65 70 75 80

Trp Glu Leu Ser Lys Ala Asn Ser Arg Phe Ala Thr Thr Phe Tyr Gln
85 90 95

His Leu Ala Asp Ser Lys Asn Asp Asn Asp Asn Ile Phe Leu Ser Pro
100 105 110

Leu Ser Ile Ser Thr Ala Phe Ala Met Thr Lys Leu Gly Ala Cys Asn
115 120 125

Asp Thr Leu Gln Gln Leu Met Glu Val Phe Lys Phe Asp Thr Ile Ser
130 135 140

Glu Lys Thr Ser Asp Gln Ile His Phe Phe Phe Ala Lys Leu Asn Cys
145 150 155 160

Arg Leu Tyr Arg Lys Ala Asn Lys Ser Ser Lys Leu Val Ser Ala Asn
165 170 175

Arg Leu Phe Gly Asp Lys Ser Leu Thr Phe Asn Glu Thr Tyr Gln Asp
180 185 190

Ile Ser Glu Leu Val Tyr Gly Ala Lys Leu Gln Pro Leu Asp Phe Lys
195 200 205

Glu Asn Ala Glu Gln Ser Arg Ala Ala Ile Asn Lys Trp Val Ser Asn
210 215 220

Lys Thr Glu Gly Arg Ile Thr Asp Val Ile Pro Ser Glu Ala Ile Asn
225 230 235 240

Glu Leu Thr Val Leu Val Leu Val Asn Thr Ile Tyr Phe Lys Gly Leu
245 250 255

Trp Lys Ser Lys Phe Ser Pro Glu Asn Thr Arg Lys Glu Leu Phe Tyr
260 265 270

Lys Ala Asp Gly Glu Ser Cys Ser Ala Ser Met Met Tyr Gln Glu Gly

275 280 285

Lys Phe Arg Tyr Arg Arg Val Ala Glu Gly Thr Gln Val Leu Glu Leu
290 295 300

Pro Phe Lys Gly Asp Asp Ile Thr Met Val Leu Ile Leu Pro Lys Pro
305 310 315 320

Glu Lys Ser Leu Ala Lys Val Glu Lys Glu Leu Thr Pro Glu Val Leu
325 330 335

Gln Glu Trp Leu Asp Glu Leu Glu Glu Met Met Leu Val Val His Met
340 345 350

Pro Arg Phe Arg Ile Glu Asp Gly Phe Ser Leu Lys Glu Gln Leu Gln
355 360 365

Asp Met Gly Leu Val Asp Leu Phe Ser Pro Glu Lys Ser Lys Leu Pro
370 375 380

Gly Ile Val Ala Glu Gly Arg Asp Asp Leu Tyr Val Ser Asp Ala Phe
385 390 395 400

His Lys Ala Phe Leu Glu Val Asn Glu Glu Gly Ser Glu Ala Ala Ala
405 410 415

Ser Thr Ala Val Val Ile Ala Gly Arg Ser Leu Asn Pro Asn Arg Val
420 425 430

Thr Phe Lys Ala Asn Arg Pro Phe Leu Val Phe Ile Arg Glu Val Pro
435 440 445

Leu Asn Thr Ile Ile Phe Met Gly Arg Val Ala Asn Pro Cys Val Lys
450 455 460

<210> 48
<211> 362
<212> PRT
<213> Homo sapiens

<400> 48

Met Gln Ala Leu Val Leu Leu Leu Cys Ile Gly Ala Leu Leu Gly His
1 5 10 15

Ser Ser Cys Gln Asn Pro Ala Ser Pro Pro Glu Glu Gly Ser Pro Asp
20 25 30

Pro Asp Ser Thr Gly Ala Leu Val Glu Glu Glu Asp Pro Phe Phe Lys

35 40 45

Val Pro Val Asn Lys Leu Ala Ala Ala Val Ser Asn Phe Gly Tyr Asp
50 55 60

Leu Tyr Arg Val Arg Ser Ser Met Ser Pro Thr Thr Asn Val Leu Leu
65 70 75 80

Ser Pro Leu Ser Val Ala Thr Ala Leu Ser Ala Leu Ser Leu Gly Ala
85 90 95

Glu Gln Arg Thr Glu Ser Ile Ile His Arg Ala Leu Tyr Tyr Asp Leu
100 105 110

Ile Ser Ser Pro Asp Ile His Gly Thr Tyr Lys Glu Leu Leu Asp Thr
115 120 125

Val Thr Ala Pro Gln Lys Asn Leu Lys Ser Ala Ser Arg Ile Val Phe
130 135 140

Glu Lys Lys Leu Arg Ile Lys Ser Ser Phe Val Ala Pro Leu Glu Lys
145 150 155 160

Ser Tyr Gly Thr Arg Pro Arg Val Leu Thr Gly Asn Pro Arg Leu Asp
165 170 175

Leu Gln Glu Ile Asn Asn Trp Val Gln Ala Gln Met Lys Gly Lys Leu
180 185 190

Ala Arg Ser Thr Lys Glu Ile Pro Asp Glu Ile Ser Ile Leu Leu Leu
195 200 205

Gly Val Ala His Phe Lys Gly Gln Trp Val Thr Lys Phe Asp Ser Arg
210 215 220

Lys Thr Ser Leu Glu Asp Phe Tyr Leu Asp Glu Glu Arg Thr Val Arg
225 230 235 240

Val Pro Met Met Ser Asp Pro Lys Ala Val Leu Arg Tyr Gly Leu Asp
245 250 255

Ser Asp Leu Ser Cys Lys Ile Ala Gln Leu Pro Leu Thr Gly Ser Met
260 265 270

Ser Ile Ile Phe Phe Leu Pro Leu Lys Val Thr Gln Asn Leu Thr Leu
275 280 285

Ile Glu Glu Ser Leu Thr Ser Glu Phe Ile His Asp Ile Asp Arg Glu
290 295 300

Leu Lys Thr Val Gln Ala Val Leu Thr Val Pro Lys Leu Lys Leu Ser
305 310 315 320

Tyr Glu Gly Glu Val Thr Lys Ser Leu Gln Glu Met Lys Leu Gln Ser
325 330 335

Leu Phe Asp Ser Pro Asp Phe Ser Lys Ile Thr Gly Lys Pro Ile Lys
340 345 350

Leu Thr Gln Gly Gly Thr Pro Gly Trp Leu
355 360

<210> 49
<211> 410
<212> PRT
<213> Homo sapiens

<400> 49

Met Ala Trp Ala Ala Pro His Glu Gly His Asp His Asp Gly His Pro
1 5 10 15

Ala Asp His Tyr His His Leu His His Gly Lys Asp Glu Ala His Pro
20 25 30

Ser His Ser Gly Glu Asp Ala Cys His Leu Leu Ser Pro His Asn Ala
35 40 45

Asp Phe Ala Phe Ser Leu Tyr Lys Lys Leu Ala Leu His Pro Asp Ala
50 55 60

Gln Gly Lys Asn Ile Phe Phe Ser Pro Val Gly Ile Ser Met Ala Leu
65 70 75 80

Ser Met Leu Ala Val Gly Ala Lys Gly Ser Thr Leu Ser Gln Ile Tyr
85 90 95

Ser Ser Leu Gly Tyr Ser Gly Leu Lys Ala Gln Gln Val Asn Glu Gly
100 105 110

Tyr Glu His Leu Ile His Met Leu Gly His Ser Gln Asp Thr Met Gln
115 120 125

Leu Glu Ala Gly Ala Gly Val Ala Ile Arg Glu Gly Phe Lys Val Val
130 135 140

```
Asp Gln Phe Leu Lys Asp Val Gln His Tyr Tyr Asn Ser Glu Ala Phe
145                 150                 155                 160

Ser Val Asp Phe Ser Lys Pro Glu Ile Ala Ala Glu Glu Ile Asn Gln
                165                 170                 175

Phe Ile Ala Lys Lys Thr Asn Asp Lys Ile Thr Asp Met Val Lys Asp
            180                 185                 190

Leu Asp Ser Asp Met Val Met Met Leu Ile Asn Tyr Met Tyr Phe Arg
        195                 200                 205

Gly Lys Trp Asp Lys Pro Phe Glu Ala Gln Leu Thr His Lys Ala Glu
    210                 215                 220

Phe Lys Val Asp Lys Asp Thr Thr Val Gln Val Asp Met Met Lys Arg
225                 230                 235                 240

Thr Gly Arg Tyr Asp Ile Tyr Gln Asp Pro Val Asn Gln Thr Thr Val
                245                 250                 255

Met Met Val Pro Tyr Lys Gly Asn Thr Ser Met Met Ile Val Leu Pro
            260                 265                 270

Asp Glu Gly Lys Met Lys Asp Val Glu Glu Ser Ile Cys Arg His His
        275                 280                 285

Leu Lys Asn Trp His Asp Lys Leu Phe Arg Ser Ser Val Asp Leu Phe
    290                 295                 300

Met Pro Lys Phe Ser Ile Ser Ala Thr Ser Lys Leu Asn Asp Ile Leu
305                 310                 315                 320

Thr Glu Met Gly Val Thr Asp Ala Phe Ser Asp Thr Ala Asp Phe Ser
                325                 330                 335

Gly Met Thr Glu Glu Leu Lys Val Lys Val Ser Gln Val Val His Lys
            340                 345                 350

Ala Val Leu Ser Val Asp Glu Lys Gly Thr Glu Ala Ala Ala Ala Thr
        355                 360                 365

Thr Ile Glu Ile Met Pro Met Ser Leu Pro Gly Thr Val Met Leu Asn
    370                 375                 380

Arg Pro Phe Leu Val Leu Ile Val Glu Asp Thr Thr Lys Ser Ile Leu
385                 390                 395                 400
```

Phe Met Gly Lys Ile Thr Asn Pro Thr Val
405 410

<210> 50
<211> 372
<212> PRT
<213> Cyprinus carpio

<400> 50

Met Pro Ala Thr Cys Leu Leu His Thr Met Leu Thr Leu Pro Ser Pro
1 5 10 15

Ser Thr Arg Asn Leu Arg Ser Ile Gln Met Pro Arg Ala Arg Thr Phe
20 25 30

Ser Ser Pro Ser Arg Tyr Arg Asn Gly Phe Glu His Ala Gly Cys Arg
35 40 45

Cys Gln Gly Ser Thr Leu Ser Gln Ile Tyr Ser Ser Leu Gly Tyr Ser
50 55 60

Gly Leu Gln Ala Ser Gln Val Asn Glu Gly Tyr Glu His Leu Ile His
65 70 75 80

Met Leu Gly His Ser Arg Glu Ala Met Gln Leu Glu Ala Gly Ala Gly
85 90 95

Val Ala Ile Arg Glu Gly Phe Lys Val Val Asp Gln Phe Leu Lys Asp
100 105 110

Val Gln His Tyr Tyr Asn Ser Glu Ala Phe Ser Val Asp Phe Ser Lys
115 120 125

Pro Glu Ile Ala Ala Glu Glu Ile Asn Gln Phe Ile Ala Lys Lys Thr
130 135 140

Asn Asp Lys Ile Thr Asn Met Val Lys Asp Leu Asp Ser Asp Thr Val
145 150 155 160

Met Met Leu Ile Asn Tyr Met Tyr Phe Arg Gly Lys Trp Asp Lys Pro
165 170 175

Phe Asp Ala Gln Leu Thr His Lys Ala Asp Phe Lys Val Asp Glu Asp
180 185 190

Thr Thr Val Gln Val Asp Met Met Lys Arg Thr Gly Arg Tyr Asp Ile
195 200 205

Tyr Gln Asp Pro Val Asn Gln Thr Thr Val Met Met Val Pro Tyr Lys
210 215 220

Gly Asn Thr Ser Met Met Ile Ile Phe Pro Asp Asp Gly Lys Met Lys
225 230 235 240

Glu Leu Glu Glu Ser Ile Ser Arg His His Leu Lys Asn Trp His Asp
245 250 255

Lys Leu Phe Arg Ser Ser Val Asp Leu Phe Met Pro Lys Phe Ser Ile
260 265 270

Thr Ala Thr Ser Lys Leu Lys Gly Ile Leu Glu Asp Met Gly Val Thr
275 280 285

Asp Ala Phe Gly Asp Thr Ala Asp Leu Ser Gly Leu Thr Glu Glu Val
290 295 300

Lys Val Lys Val Ser Gln Val Val His Lys Ala Val Leu Ser Val Asp
305 310 315 320

Glu Lys Gly Thr Glu Ala Ala Ala Ala Thr Thr Ile Glu Ile Met Pro
325 330 335

Met Ser Leu Pro Asp Thr Val Ile Leu Asn Arg Pro Phe Leu Val Leu
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Ile Val Glu Asp Thr Thr Lys Ser Ile Leu Phe Met Gly Lys Ile Thr
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Asn Pro Thr Glu
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